SOLICITATION, OFFER AND AWARD

1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)	RATING	PAGE	OF	PAGES
		1		92

2. CONTRACT NO.	3. SOLICITATION NO.	4. TYPE OF SOLICITATION	5. DATE ISSUED	6. REQUISITION/PURCHASE NO.
	W912P5-04-R-0021	[ ] SEALED BID (IFB) [X] NEGOTIATED (RFP)	16 Jun 2004	

7. ISSUED BY	CODE	8. ADDRESS OFFER TO (If other than Item 7)	CODE
US ARMY CORPS OF ENG.-NASHVILLE- W912P5 CELRN-CT, ROOM A604 110 NINTH AVE. SOUTH P O BOX 1070 NASHVILLE TN 37202-1070 TEL: FAX:(615) 736-7124	W912P5	**See Item 7** TEL: FAX:	

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

SOLICITATION

9. Sealed offers in original and _____ copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in _____ until _____ (Hour) local time _____ (Date)

CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE (Include area code) (NO COLLECT CALLS)	C. E-MAIL ADDRESS
	JAMES W PURCELL	615-736-7569	James.W.Purcell@usace.army.mil

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OFFER (Must be fully completed by offeror)

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within _____ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52.232-8)

14. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated):

AMENDMENT NO.	DATE	AMENDMENT NO.	DATE

15A. NAME AND ADDRESS OF OFFEROR	CODE	FACILITY	16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)

15B. TELEPHONE NO (Include area code)	15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.	17. SIGNATURE	18. OFFER DATE
	☐		

AWARD (To be completed by Government)

19. ACCEPTED AS TO ITEMS NUMBERED	20. AMOUNT	21. ACCOUNTING AND APPROPRIATION

22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:	23. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)	ITEM
☐ 10 U.S.C. 2304(c)( ) ☐ 41 U.S.C. 253(c)( )		

24. ADMINISTERED BY (If other than Item 7) CODE	25. PAYMENT WILL BE MADE BY CODE

26. NAME OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:	27. UNITED STATES OF AMERICA (Signature of Contracting Officer)	28. AWARD DATE

IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

Section B - Supplies or Services and Prices

BID SCHEDULE

SECTION B

BID SCHEDULE

The following materials, equipment, and services are required to provide a completely compatible and fully integrated replacement control system at Nickajack Auxiliary Lock, Tennessee River, Jasper, Tennessee:

ITEM	DESCRIPTION	QUANTITY	U/M	UNIT PRICE	AMOUNT
0001	Engineering and Design Services	**1**	**LS**	_____	_____
0002	Equipment and Software (Total Price) Consisting of:	**1**	**LS**	_____	_____
	SUBCLIN				
	0002AA Application Software Package	2EA		_____	_____
	0002AB Network(s) Communications	1LS		_____	_____
	0002AC Programming Computer	1EA		_____	_____
	0002AD Fiber Optic Cable	1LS		_____	_____
	0002AE Operator Interface Software Package	2EA		_____	_____
	0002AF Operator Interface Control Station:				
	(1) For Control Shelters	2EA		_____	_____
	(2) For Operations Building	1EA		_____	_____
	(3) For Remote Location at Operator's Overlook	1EA		_____	_____
	0002AG Industrial-grade Personal Computer	3EA		_____	_____
	0002AH I/O System	1LS		_____	_____
	0002AJ Hard-Wired Safety System	1LS		_____	_____
	0002AK Drive Systems	1EA		_____	_____
	0002AL Water Level System	1LS		_____	_____
	0002AM Small Craft Warning System	1LS		_____	_____
	0002AN Weather Monitoring Station	1LS		_____	_____

0003	Installation and Training Services (total price) Consisting of:	**1**	**LS**	_____	_____
	SUBCLIN				
	0003AA PC-Based Lock Control Network Configuration and Programming	1LS		_____	_____
	0003AB Operator Interface System Equipment Configuration and Programming	1LS		_____	_____
	0003AC Installation, Start-Up, and Commissioning Services	1LS		_____	_____
	0003AD Training Services	1LS		_____	_____

TOTAL . . . . . $_____

END OF SECTION

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	ENGINEERING & DESIGN SERVICES	1	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002	EQUIPMENT & SOFTWARE	1	Lump Sum		

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003	INSTALLATION & TRAINING SERVICES	1	Lump Sum		

FOB: Destination

Section C - Descriptions and Specifications

SPECIFICATIONS

SECTION C

DESIGN-BUILD
PERFORMANCE-BASED TECHNICAL SPECIFICATIONS

FOR

LOCK CONTROL SYSTEM REHABILITATION AT
NICKAJACK AUXILIARY LOCK,
TENNESSEE RIVER, JASPER, TENNESSEE

SECTION C

DESIGN-BUILD

PERFORMANCE-BASED TECHNICAL SPECIFICATIONS

PERFORMANCE WORK STATEMENT

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SECTION C

DESIGN-BUILD

PERFORMANCE-BASED TECHNICAL SPECIFICATIONS

PERFORMANCE WORK STATEMENT

1. SCOPE

1.1 General. The Government by means of this solicitation and these specifications, utilizing a Two-Phase Design-Build Selection Procedure, seek to acquire the services of a Contractor to furnish all labor, management, administration, on-site information surveys, engineering, design, computer-aided design and drafting (CADD), programming, start-up and commissioning, and on-site training services; on-site installation; fabrication/assembly; transportation; packaging and shipping; materials and equipment necessary for a complete rehabilitation of the existing Nickajack Auxiliary Lock control system and specified electrical equipment with a new personal computer (PC)-based electronic control system and new specified electrical equipment in accordance with these specifications and the Contractor's subsequent design. Contractor personnel shall perform all installation, programming, start-up, and commissioning in accordance with these specifications, the design and installation plans, and the Contractor-furnished materials and equipment necessary for the complete rehabilitation.

1.2 Project Description and Location. Nickajack Auxiliary Lock is located in the southeastern Tennessee County of Marion at Mile 424.7 of the Tennessee River. The lock was placed in full operation in 1967 and has a chamber size of 600' x 110'. The existing lock control system is a 240-volt, hard-wired, relay-based system. Existing operator control stations utilize bench boards with pistol-grip type control switches and pilot lights. The motive power for the culvert segmental emptying and filling valves and upstream and downstream lock miter gates consists of individual electrical motor-hydraulic unit and two-speed electric motor with reducer, respectively. The towing equipment (i.e., tow haulage unit) is electric driven with a traveling bitt.

2. APPLICABLE DOCUMENTS

2.1 General. As a minimum, all materials, equipment, installation, workmanship, and tests shall conform to the current standards, codes, regulations, and specifications of the authorities listed below and others as applicable. The publications are referred to in the text by the basic designation only.

2.2 American National Standards Institute (ANSI).

S1.4-1983 (R2001)	Sound Level Meters; Amd. S1.4A-1995

2.3 American Society of Mechanical Engineers (ASME).

B1.1 (R2001)	Unified Inch Screw Threads (UN and UNR Thread Form)
B1.20 (R2001)	Pipe Threads General Purpose
B17.1 (R1998)	Keys and Key seats

2.4 American Society for Testing and Materials (ASTM) Standards.

A 153-01	Zinc Coating (Hot Dip) on Iron and Steel Hardware
B 8-99	Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
B187-00	Copper Bus Bar, Rod and Shapes
B188-02	Standard Specifications for Seamless Copper Bus Pipe and Tube

2.5 American Welding Society (AWS).

D1.1-02	Structural Welding Code – Steel
D1.3-98	Structural Welding Code – Sheet Steel

2.6 Electronic Industries Association (EIA).

EIA-443	Standards for Solid State Relays, EIA/NARM

2.7 Factory Mutual System (FM) Publication.

Approval Guide (Equipment, Material, Services for Conservation of Property) 1983 with Quarterly Supplements.

2.8 Institute of Electrical and Electronics Engineers (IEEE) Standards.

IEEE 1-00	General Principles for Temperature Limits in the Rating of Electronic Equipment
IEEE 142-91	Grounding of Industrial and Commercial Power Systems
IEEE 404-93	IEEE Standards for Power Cable Joints
IEEE C2-2002	National Electrical Safety Code
IEEE C12.1-1995	Instrument Transformers for Metering Purposes, 15 kV and less
IEEE C37.20.2-1999	Metal-clad and Station-type Cubicle Switchgear
IEEE C37.90-1989	Relays and Relay Systems Associated with Electric Power Apparatus

IEEE C39.1 Requirements for	Electrical Analog Indicating Instruments,
IEEE C57.13-1993	Instrument Transformers, Requirements for
IEEE C62.32-81 (R1994)	Low-Voltage Air Gap Surge Protective Devices
IEEE C62.41 (1995)	Surge Voltages in Low-Voltage AC Power Circuits
IEEE C80.1-94	Rigid Steel Conduit – Zinc Coated

2.9 National Electrical Manufacturer's Association (NEMA).

NEMA AB 1-86 (R1989)	Molded Case Circuit Breakers (Revision 1 – January 1989)
NEMA ICS 1-00	General Standards for Industrial Controls and Systems
NEMA ICS 1.1-84 (R1998)	Safety Guidelines for the Applications, Installation and Maintenance of Solid State Control
NEMA ICS 2-00	Industrial Control Devices, Controllers and Assemblies
NEMA ICS 3 (R2000)	Industrial Systems
NEMA ICS 4-00	Terminal Blocks for Industrial Use
NEMA ICS 6(R2001)	Enclosures for Industrial Control and Systems
NEMA KS 1-01	Enclosed Switches
NEMA MG 1-98	Motors and Generators; with Revisions thru Rev. 2: 2001
NEMA PB 1	Panelboards
NEMA ST 1 (R1997)	Specialty Transformers (Except General Purpose Type)
NEMA ST 20-92 (R1997)	Dry-Type Transformers for General Applications
NEMA WC 7-88	Crossed-Linked-Thermosetting-Polyethylene-Insulated Wire and Cable for the Transmission and Distribution for Electrical Energy
NEMA WC 8-88	Ethylene-Propylene-Rubber-Insulated Wire and Cable for the Transmission and Distribution

	of Electrical Energy
NEMA 250	(1985; Rev 1 & 2, ICS 6) Enclosures for Electrical Equipment (1000 volts maximum)

2.10 National Fire Protection Association (NFPA).

NFPA 70 (2002)	National Electrical Code (NEC)
NFPA 79 (1997)	Electrical Standard for Industrial Machinery

2.11 Federal Communications Commission (FCC).

FCC Part 15(July 1986)	Rules and Regulations: Radio Frequency Devices

2.12 Underwriters Laboratories, Inc. (UL).

Building Materials Directory (January 1983 with Quarterly Supplements)

UL 44-2000	Rubber-Insulated Wires and Cables
UL 50-1995	Cabinets and Boxes
UL 198C	High-Interrupting-Capacity Fuses, Current-Limiting Types (5th Ed., February 25, 1998)
UL 198H	Class T Fuses; (4th Ed., November 9, 1993)
UL 231	Power Outlets (8th Ed., March 12, 1999)
UL 467-1998	Grounding & Bonding Equipment
UL 508-2001	Industrial Control Equipment
UL 514A-2001	Metallic Outlet Boxes
UL 845	Motor Control Centers; 4th Ed., May 17, 2000
UL 943-2002	Ground-Fault Circuit Interrupters
UL 1063	UL Standard for Safety, Machine Tool Wires and Cables

3. REQUIREMENTS

3.1 General. The Contractor shall furnish all labor, management, administration, on-site information surveys, engineering, design, computer-aided design and drafting (CADD), programming, start-up and commissioning,

and on-site training services; on-site installation; fabrication/assembly; transportation; packaging and shipping; materials and equipment necessary to commission a new control system based on field-proven, state-of-the-art, off-the-shelf (OTS) hardware and software. The new control system shall, as a minimum, utilize a personal computer (PC)-based control platform, open architecture technology; deterministic hard real-time control engine; field bus network; digital communications; operator interfaces (OI); and a minimal hard-wired safety (HWS) backup system. The Contractor shall perform demolition and disposal services of the existing control system components and specified electrical equipment being rehabbed by this contract. Demolition shall be performed in such a manner as not to damage existing and/or new equipment required for future operation; before demolition commences, coordination shall be made with the Nickajack Lock Master on equipment he deems the Government will keep in lieu of disposal. Contractor personnel shall perform all installation, programming, start-up, and commissioning in accordance with these specifications, the design and installation plans, and the Contractor-furnished materials and equipment necessary for the complete rehabilitation.

3.2 Fundamental Performance. The new control system and specified electrical equipment shall be a complete, fully operational replacement for the existing control system and equipment, and (1) be functionally compatible with all remaining existing equipment, (2) be functionally compatible with all new equipment furnished under this contract, (3) have user-friendly graphical OIs, (4) comprise an interchangeable and interoperable integrated system to the replacement part level, addressing both horizontal and vertical connectivity of equipment, (5) perform all operator-initiated tasks required to safely, efficiently, and effectively monitor and control lockage operation functions, and (6) utilize a 120-volt system as the primary control voltage, in lieu of the existing 240-volt system. Specific operation and minimum required performance characteristics of the lock equipment for which the new control system shall monitor and control is described in paragraph 3.6, Scope of Services.

3.3 Conformance. As a minimum, the design, installation, workmanship, safety, materials, and equipment shall conform to the current requirements of NFPA 70, National Electrical Code. Equipment shall meet NEMA and UL construction and rating requirements, no equivalent will be acceptable. International Electro-technical Commission (IEC) rated equipment shall not be considered an acceptable alternative to specified NEMA ratings.

3.4 Environmental Requirements.

3.4.1 General. Materials and equipment will be subjected to moderate-to-severe moisture conditions; operate over a general temperature range of 0°F (-18°C) to 140°F (60°C), and be exposed to potentially corrosive substances. Contact between dissimilar metals shall be avoided or proper treatment/protection shall be utilized to prevent the possibility of corrosion.

3.4.2 Wiring and Equipment. Wiring and equipment designated for outdoor-type usage or in damp or wet locations shall conform to Marine-grade standards. All equipment, wiring, cabinets, fixtures, pushbuttons, indicating lamps, operator devices, and indicators shall be industrial-grade, heavy-duty type construction.

3.4.3 Enclosures. Enclosures designated for outdoor-type usage or in damp or wet locations shall conform to NEMA Type 4X standards. Enclosures designed for indoor-type usage shall conform to NEMA Type 12 standards.

3.4.4 Corrosion Control. All materials and equipment specified for manufacture, fabrication, or assembly shall be corrosion-resistant or treated to render them corrosion-resistant.

3.5 Scope of Materials, Equipment, Networks, and Systems.

3.5.1 General. Materials and equipment shall be standard OTS products of a manufacturer regularly engaged in the business and shall essentially duplicate items that have been in satisfactory, commercial use for at least 2 years prior to bid opening. Materials and equipment shall be free from defects and imperfections, of recent manufacture, and of the classification and grades designated. All materials and equipment not manufactured by the Contractor shall be products of other recognized reputable manufacturers.

Contractor-furnished materials and equipment shall be integrated with the project's existing equipment to form a completely functional and interoperable system. The project's existing primary equipment to be operated includes: two filling valves, two emptying valves, four miter gate leaves (two miter gates), a tow haulage unit, a navigation traffic signal system, air horn, discharge siren, and a water level system. The new control system shall monitor and control the project's primary machinery and appurtenances, either existing or new as furnished as part of this solicitation. Isolation transformers, power conditioners, and/or uninterruptible power supplies (UPS) shall power all critical/sensitive equipment in accordance with manufacturer's recommendations and recognized engineering practices.

3.5.2 Personal Computer -Based (PC-based) Lock Control Network.

3.5.2.1 General. The control system shall, as a minimum, be a digital, programmable, distributed control system and shall meet industry standards for hard real-time monitoring and control of complex industrial automation processes; shall provide direct digital control of three-phase variable frequency drives; shall also be used for non-drive applications, such as process control or machine logic control; shall include industrially-hardened PCs; shall consist of all PC processor equipment with enclosures, fiber optic network cable and interface equipment, position monitoring equipment, programming, start-up, and training services.

3.5.2.2 Control Parameters. The following minimum control parameters directly relate to the successful and reliable operation and maintenance of the new control system and shall be integral to the total system.

a. Deterministic Operation. Process control shall be treated as the highest priority and ensure predictable, repeatable response. A hard real-time control, real-time operating system (RTOS) shall be specified; specification of a PC-based "soft logic" shall not be acceptable for this system.

b. Windows Crash. The control program shall survive a General Protection Fault (GPF) in Windows, or the "Blue Screen of Death" in Windows NT, and continue to operate in a reliable and safe manner. Hence, a modified Windows-based RTOS or any RTOS running in Windows shall not be acceptable.

c. Windows Applications and Drivers. The control system shall not be affected by applications or drivers, which become unstable.

d. Hard Disk Operation. Deterministic control shall not be interrupted due to an event, which causes the hard disk to crash, becomes inoperable or unstable, or is physically/electrically removed. Hence, the RTOS shall be protected against any hard disk failure or removal.

e. Control Engine. The specified control engine shall be industry-proven, commercially available, and OTS with an identified, reliable past performance in mission critical applications. Untested RTOS shall not be acceptable.

3.5.2.3 System Features. The control system shall be designed for flexibility, maximum reliability, and for integration into higher-level information systems. The following minimum general and advanced features and capabilities shall be present.

a. Distributed Control. Shall divide large systems into smaller subsystems that are more manageable. Sections shall be separated for specifying, performance measurements, and ease of maintenance and troubleshooting, yet all sections are required to act together to form an integrated system.

b. Distributed Power. Shall separate the power circuits from the regulation and control hardware for simpler installation and ease of maintenance.

c. Digital Control. Shall provide maximum flexibility for the initial set-up of the system, to accommodate future changes, make system variables available for diagnostics and reporting without additional hardware.

d. User Friendly Software. Shall allow selections of a commonly used high level language that is appropriate for the application. The software shall not require the use of machine assembly language for programming, or the remembering of register numbers to design or maintain the system.

e. Modular Hardware and Software. Shall simplify troubleshooting and maintenance while providing maximum flexibility to meet the requirements of the application.

f. Network(s) Communications. Shall be a defacto-networking standard for industrial automation applications. This communication shall include taking directions from supervisory computers and reporting status and other information to these same computers. It shall also include communications with color graphic displays and networking capabilities both within a system and between systems. Shall have off-site communication capabilities. Off-site communication capabilities shall include, but not be limited to, programming, monitoring, transmission, and reception of network data. Network shall be designed with redundancy to prevent failure of the network communications due to failure of the primary network. Shall have networking, serial communications, and field bus capabilities for integrating ac motor drives, solid-state soft-starters, intelligent field devices (i.e., limit switches, motor contactors, etc.), and control sections into a system, and for communication with other systems.

g. Self-Diagnostics. Each subsystem shall be self-testing and report improper operation. The equipment shall help operations and maintenance personnel locate faults to the board level and identify the modules to be replaced. Shall provide a multi-level diagnostic capability, including individual module hardware and firmware self-diagnostics, processor firmware self and system diagnostics, and programming terminal system and module diagnostics, and customized programmable diagnostics for the lock’s application.

h. Construction. The equipment shall be designed to take normal abuse in a typical utility environment. It shall withstand normal handling during storage, installation, and maintenance. It shall be electrically immune to typical line transients and variations in line voltage. It shall also be immune to the electromagnetic noise produced by switching high currents in a typical drive environment. The equipment shall have modular construction with individually enclosed modules provided with electromagnetic interference (EMI) protection.

i. Control. The lock processes shall have primary monitoring and control from the two existing lock operator control shelters and monitoring/limited control from the lock operations building. Local individual machine monitoring and control shall also be located at the respective machinery recesses (i.e., miter gate leaves, culvert valves, and tow haulage unit).

j. Names or Labels. Symbolic alphanumeric names or labels shall identify all variables. These named variables may be defined to only be used within a single task or can transfer data between multiple tasks, even when written in different languages, or when the tasks reside in different processors or on different nodes of a network. It shall not be necessary to remember numerical addresses when programming or troubleshooting.

k. Input/Output (I/O) Modules. Arrangement of I/O modules shall be designed so as to minimize hardware and installation costs. Functions as indicated for the remote location of I/O modules, as well as for direct wiring of I/O to a chassis containing processor modules. This arrangement shall minimize hardware and installation costs.

3.5.2.4 Hardware. The control system's signals and control circuitry shall be provided in modules. Each module shall include the circuits required for a designed specific function. Individual enclosures shall protect the circuit components from physical damage during handling and also damage due to static electricity. The control power shall be provided with standard circuit components, such as disconnect switches, transformers, 24 VDC power supplies, and properly mounted standard NEMA-rated enclosures, where applicable.

The module types shall be divided into the following general functional groupings:

a. Operator Interfaces (OIs). Operator Interfaces shall provide PC-based display and control screens with embedded computer processor technology and capability to interface to the local device network.

b. Input/Output (I/O) Modules. I/O modules shall be capable of processing discrete digital and analog signals and interfacing to the local device network.

c. Motor Starters and Controllers. Motor starter units shall be capable of control via the local device network.

d. Variable Frequency Drives. AC Variable Frequency Drive (VFD) systems shall be capable of receiving and transmitting control signals via the local device network.

3.5.2.5 Application Software Package. The control system shall utilize standard off-the –shelf (OTS) software. The Contractor shall utilize the software to configure the control system and create program files as required to implement the control functions required for each application and each equipment operating system of the navigation lock. The Contractor shall program the control system

utilizing the application software such that the lock control system shall be made up of multiple tasks that can operate independently or can interact with other tasks in the same or other nodes on the control network. Each task shall execute continuously, at a specified time interval, or in response to the occurrence of an event, as required.

Three copies of the final as-constructed program files shall be required and furnished on compact diskettes (CDs) with Read and Write capabilities. Two copies shall be for the district office and the third copy shall be for the lock. All OTS application software package(s) and contractor developed final program files shall remain the property of the Government with all rights of operations, maintenance, programming, and other applicable uses as deemed necessary by the Government

The Contractor using language appropriate to the task shall program the program files. All variables (labels) shall be by alphanumeric symbolic names. Common variable formats shall enable all tasks within a rack of any language to communicate. All tasks shall also interact via predefined events. The software shall execute the following minimum tasks:

a. Data Handling. Math operations, data manipulations, decision-making, communications, screen drivers, and keyboard handlers.

b. Control Loops. Master reference generation; drive regulation, process control loops, servo control (positioning), and programmable limit switches.

c. Sequential Logic Functions. Ladder diagram or Boolean logic for line control; drive off/on control, machine solenoid and AC starter control, and annunciation.

The software shall also meet the following minimum extended process control software requirements:

a. Hard real-time control via Real Time Operating System (RTOS); not Windows.
b. Hard disk failure and/or removal protection.
c. Windows crash protection.
d. UPS to control software handshake capability.
e. Relay Ladder Logic and Flow Chart editor.
f. DDE, Fast DDE, OPC, and DLL connectivity option.
g. Ethernet network connectivity.
h. Remote monitoring, editing, and modification capability.
i. Driver(s) support.
j. Retentive memory option.
k. CSV Import/Export capabilities.
l. 1D, 2D, and 3D array support.
m. Automatic tag creation based on device selection.
n. Simulation support.

Application Software Programming Executive shall have the following minimum features:

a. Stop or start selected task(s).
b. Monitor the values of individual variables or I/O registers and points.
c. Modify values of individual variables or I/O registers and points. (The software can reset a “set” variable; a “forced” variable can only be changed via the programming terminal).
d. Tune predefined variables in the data acquisition and control loop tasks.
e. Make on-line modifications to the logical sequences of the equipment.
f. Upload tasks and logic from the control system for editing, or comparing with the files.

The software shall also meet the following minimum extended process configuration requirements:

a. Refresh speed of less than 100 milliseconds per full network.
b. Read attributes from the devices.
c. Toggle I/O capability.
d. Configure faulted devices.

OFFERING: (0001 - Application Software Package)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART/VERSION NO._____
NUMBER OF YEARS IN INDUSTRIAL APPLICATION_____
JUSTIFICATION (Attach additional page(s) as required)_____
_____
_____
_____

3.5.2.6 Network(s) Communications. The network(s) communications shall be designed to meet, as a minimum, these requirements:

a. Digital controls and monitoring of all lock equipment.
b. Lock-wide fiber optic interface between the various sections of the lock.
c. Network configuration shall be required as part of the proposal to demonstrate that the proposed communications network(s) meets or exceeds all performance requirements either listed or implied for the lock control system as defined in this solicitation. The proposal shall, as a minimum, state the network(s) configuration; provide a block diagram of the network(s) configuration; state protocol(s); meet and list applicable standard(s); shall be industrial grade; real time; and demonstrate interchangeability, interoperability, and reliability. Proposal shall state network(s) components along with their specifications. Example of components to be stated, which are not all-inclusive, are repeaters, transmitters, receivers, FO connectors, power supplies, terminations, and cables.
d. Reference paragraph 3.5.2.3.f, Network(s) Communications.

OFFERING: (0002 – Network(s) Communications)

NETWORK (S) CONFIGURATION_____
MANUFACTURERS' NAME_____
BRANDS_____
MODEL OR PART NOS. _____

3.5.2.7 Programming Computer. All programming and application programs shall be developed and maintained using a standard OTS personal computer (PC), hereinafter, referred to as the project's Programming Computer, with Windows operating system and the PC-based Network programming executive software installed. The individual tasks shall be stored on the control system's hard disk drives and on a backup compact disk(s). All files shall be capable of being copied, renamed, edited, or deleted. Normal test editing and ladder diagram editing functions shall be supported.

The Programming Computer shall be a Notebook from a nationally recognized major manufacturer, DELL or equal, and have the following minimum specifications, accessories, and pre-loaded software:

a. Microsoft Windows 2000 Professional (latest version).
b. PC-based network programming executive software (latest version).
c. 512 MB of RAM.
d. Intel Pentium IV Processor.

e. 1.6 GHz clock speed.
f. 14" XGA TFT display.
g. Optical mouse.
h. Carrying case with shoulder strap.
i. 40GB hard disk drive.
j. Compact Disk –Read/Write (24X CD-RW) internal, removable drive.

OFFERING: (0003 – Programming Computer)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.2.8 Diagnostics. The required diagnostics capabilities of the new lock control system are divided into the following categories:

a. On-Board Diagnostics. These are defined as diagnostics associated with individual modules, which can be implemented either in hardware or firmware. The on-board diagnostics can be divided into the following types:

1). Hardware, where hardwired circuits detect fault conditions or status and turn on/off appropriate LED indicators.

2). Firmware, where the operating system of any microprocessor-based module performs checks on the circuitry. Checks, such as writing and reading memory locations, are usually performed only when AC power is first applied, or after a reset.

3). Hardware/firmware, where specialized hardware works in conjunction with the operating system firmware to detect malfunctions. An example of this type is the watchdog time-out detection performed by the processor module.

b. System Diagnostics. These are firmware diagnostics performed by the Processor Module on the rest of the system.

c. Drive Fault Diagnostics. These consist of a group of drive fault checks inherent in the current minor loop control block, or other drive control block, as defined in the specifications for Variable Frequency Drives (VFDs).

d. Programmer Diagnostics. These are performed on the system by the programming executive software in the Programming Computer (or an equivalent PC/programming terminal). One processor module serial port per main rack shall be dedicated to the connection for this device. All processors on the network shall be capable of being accessed from these ports in any of the racks connected to the network.

e. Communication Diagnostics. All communication modules shall include diagnostics that can be divided into the following groups:

1). Firmware self-diagnostics performed by the operating system contained on the communication module when AC power is first applied.

2). Communications line diagnostics performed continuously on the multi-drop communication line by the operating system contained on the communication module.

3.5.2.9 Fiber Optic Network.

a. General. The primary network communications for monitoring, control, and data acquisition within the lock control system shall be by means of a fiber optic network infrastructure. The fiber infrastructure consists of the fiber optic cables and the interconnections and shall be to designed and installed in order to maximize operational uptime by means of providing the maximum electrical isolation protection from electrical transients, lightning strikes, electromagnetic interference (EMI), and other electrical discharge effects.

b. Fiber Optic (FO) Cable. The FO cable shall meet the operational, maintenance, and installation requirements for this application and the requirements of a UL-listed Type Optical Fiber Nonconductive Riser (OFNR) cable in accordance with NEC sections 770.51 (B) and 770.53 (B) for use in vertical runs in building riser shafts or from floor to floor and suitable for both indoor/outdoor use. Shall meet Bellcore's requirements for intra-building fiber optic cables as outlined in GR-409-CORE (Issue 1, May 1994).

OFFERING: (0004 – Fiber Optic Cable)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.3 Operator Interface (OI) System Equipment.

3.5.3.1 General. Three industrial-grade personal computer-based (iPC-based) operator interface control stations shall be furnished complete with all necessary hardware, configuration software, cables, software utilities, hardware interfaces, power supplies, and enclosures. These OI units shall be iPC-based graphical user interface with programmed control screens.

A fourth OI control station, for remote operations, shall be located at the operator's overlook outside the lower (downstream) control shelter and shall be furnished complete with all necessary hardware, configuration software, cables, software utilities, hardware interfaces, power supplies, and enclosure/mounting hardware and shall have the following minimum operating capabilities: control of the discharge siren, air horn, traffic control signals, and tow haulage unit. Operator controls and displays and enclosure shall be rated for outdoor usage with appropriate hinged, lockable door and watertight construction.

3.5.3.2 Operator Interface Software Package. Three copies of the final as-constructed program files shall be required and furnished on compact diskettes (CDs) with Read and Write capabilities. Two copies shall be for the district office and the third copy shall be for the lock.

OFFERING: (0005 – Operator Interface Software Package)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART/VERSION NO._____
NUMBER OF YEARS IN INDUSTRIAL APPLICATION_____
JUSTIFICATION (Attach additional page(s) as required)_____
_____
_____
_____

3.5.3.3 System Features and Requirements. As a minimum, the Operator Interface System Equipment shall meet the following:

a. The OIs shall be housed in appropriate enclosures with proper labeling attached to the enclosures and/or interfaces as required for proper identification of control devices and OI stations.

b. Enclosure type/style for the OI stations shall be coordinated with the lockmaster and be free-standing electrical cabinets/enclosures and of sufficient size to also house the lock's existing desktop PCs located in the upstream and downstream control stands and the devices for the minimum hard-wired safety system. These enclosures shall be off-the-shelf (OTS) manufactured by a reputable company routinely engaged in the business and will need to coordinate with the available space and the existing floor conduit duct banks.

c. Enclosures for the OI stations shall be furnished for the existing upstream and downstream control shelters and the lockmaster's office within the lock's operations building. The enclosure for the operations building shall be on casters.

d. The Contractor shall program the Application User Screens for each OI. The development of all user screens shall be coordinated with the lockmaster. The user screens shall contain the necessary features for proper machine/device control and status indication. The Contractor shall program Operation and Maintenance Screens to be utilized for machine diagnostics, troubleshooting, and aid in proper maintenance and repair.

e. The OI station for the operations building shall have capability for alarm and historical trending and include a dedicated color inkjet type printer.

f. The OIs shall be OTS manufactured by a reputable company routinely engaged in the business.

g. The operations building OI shall be installed with appropriate hardware and software and be configured to allow off-site communication capabilities.

h. The enclosures, which are to house the existing lock PCs and the OIs for the upstream and downstream control shelters, shall have a flat portion for placement of the lock PC monitor and a sloped top for mounting the OI and other selective control and monitoring devices.

i. A remote OI control station located at the operator's overlook outside the lower (downstream) control station shall be installed as part of this contract and shall have the following minimum operating capabilities: control of the discharge siren, air horn, traffic control signals, and tow haulage unit.

OFFERING: (0006 – Operator Interface Control Station Enclosures)

(1. – Control Shelters):
MANUFACTURER'S NAME_____

BRAND_____
MODEL OR PART NO._____

(2. – Operations Building):
MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

(3. – Remote Location at Operator's Overlook):
MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.3.4 Industrial-grade Personal Computer (iPC). Industrial-grade personal computers shall be incorporated into the Contractor's design of the PC-based control and the operator interface network. All iPCs used for the operator interface network shall comply with following minimum requirements:

a. Display Specifications. Shall be 19-inch color TFT flatpanel display with full XGA resolution.

b. Computer Specifications.

1). User Interface. Shall be analog resistive touchscreen with an alternate wireless pointer device.

2). CPU. Shall be Pentium IV, 1.6 GHz.

3). System Memory. Shall have 256 MB.

4). Storage Memory. Shall have compact FLASH RAM, 512 MB; 40 GB field replaceable hard drive; Compact Disk –Read/Write (CD-R/W) field replaceable drive; 2 MB high speed SDRAM video memory; and 3-1/2" field replaceable floppy drive.

5). I/O Ports. Shall have serial, parallel, Ethernet, and USB ports, and expansion slots as required based on final design and operational requirements.

6). Environmental. Shall be designed for NEMA 4 and have a 0°C (32°F) to 60°C (140°F) operating temperature range.

7). Operating System. Shall be Microsoft Windows 2000 Professional (latest version)

OFFERING: (0007 – Industrial-grade Personal Computer)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.4 Input/Output System. The following minimum attributes for the industrial-based input/output (I/O) system shall be present:

The I/O system shall be separated into three types: (1) discrete devices, (2) analog devices, and (3) intelligent devices. The approximate application size (i.e., I/O points) is 400 - 500 points. As part of the Contractor's proposal and subsequent design, it shall be his responsibility to determine actual total I/O for this project by reviewing existing project folio drawings, field site visit(s), and coordination with Nashville District Corps personnel. Total designed and installed I/O shall be such to include at least 20% spare capacity.

The PC-based control system shall have the capability to control, monitor, and force I/O from within the same and different vendors at the same time and have sufficient capacity within the PC to be easily expandable to handle future additional devices.

This project shall be designed and installed utilizing one of the field-proven, industry-based "open, device-level I/O field buses ", such as, DeviceNet, Foundation Fieldbus, and Profibus. The Contractor shall propose the I/O system and shall state why his is the best to meet the project's current and future application needs and requirements. All hardware, software, cabling, programming, etc., such as, but not limited to, I/O interface card(s), I/O network cabling, I/O modules, I/O racks, and distributed I/O shall be Contractor furnished in order to facilitate a complete, compatible, and interoperable I/O system. All the states of input and output, and any other system information and data the I/O system is required to support shall be handled transparently by the PC-based control system, thus requiring no lock (operator) personnel involvement. The I/O system shall be capable of performing self-diagnostics, device diagnostics, and be programmed and installed to facilitate commissioning, troubleshooting, and maintenance of the system.

The I/O system shall utilize a "single common tag name database." Where each element of the PC-based control software can access the same database with a single set of tag names. I/O points shall be configured and given tag names once, and the same tag name be used throughout all software applications, including but not limited to, the PC operator interface and the software control engine.

OFFERING: (0008 - Input/Output System)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____
NUMBER OF YEARS MANUFACTURED_____
JUSTIFICATION (Attach additional page(s) as required)_____
_____
_____
_____

3.5.5 Hard-Wired Safety System.

3.5.5.1 General. Parallel to the computer control system, the Contractor shall design, furnish, install, commission, startup, and test all equipment, materials, wire, and cabling for a new minimal hard-wired safety (HWS) system to serve the following functions: (a) To provide a method to operate the culvert filling and emptying valves, and respective set of miter gates from the main upstream and downstream control shelters in the event of a failure in the new PC-based control system; (b) Provide a hard-wired emergency stop pushbutton system to shut down all lock machinery operations; (c) Provide a safety backup to the automatic upstream and downstream machinery operation interlocks; and (d) Provide a strategic arrangement of limit switches for fail-safe over travel

protection for all traveling machinery by directly deactivating the equipment regardless of software interlocks. The software interlock, prepared under this contract, shall parallel and duplicate the hard-wired safety interlock scheme. Each of the "EMERGENCY STOP" buttons and any reference to "HWS" shall be an interface to this system. The interlock bypass feature shall use specified outputs to defeat the HWS system.

3.5.5.2 General Operations. These operations are furnished for information only, and are the responsibility of the Contractor to coordinate with the Lockmaster at Nickajack Lock for verification to facilitate proper design, development of installation drawings, network configuration and programming, and subsequent monitoring and operation capabilities. The HWS system shall provide monitoring of the status of the culvert valves and miter gates position limit switches and interlocks the upstream and downstream equipment positions. All operations of the culvert valves and miter gates machinery by means of the PC-based system or the emergency system shall be dependent of the interlock status of the HWS system.

a. Selective Trip. Each direction of a reversible motor shall be monitored and have control capabilities for selective tripping. As an illustration, if a miter gate closes on an obstruction, only the closing circuit shall be deactivated. If the operator chooses to do so, the gate could be opened immediately without any reset required, but the closing circuit shall remain defeated until reset. Once the gate obstruction is cleared, the alarm-reset button shall be activated and returned to its normal position and operation. The software commands shall in no way interfere with this mode of operation.

b. Total Shutdown. The only devices that shall totally disable the lock are the "EMERGENCY STOP" buttons. Activating any one of these buttons shall disable all operating machinery in the lock with the exception of the fire pumps. The fire pump control system is a separate control system independent of all hard-wired and software interlock schemes. The software system shall not obstruct this scheme.

c. Functions Not Requiring Manual Reset. Functions, which do not require manual reset when activated, are those which prevent the upstream miter gate leaf(s) and/or filling valve(s) from being opened when either the downstream miter gate leaf(s) and/or emptying valve(s) is opened. This condition would create an objectionable short circuit flow from the headwaters (lake level) to the tailwater (river level). Therefore, the safety system shall be designed to prevent this event from accidentally occurring. This function shall be duplicated in the software interlock scheme. This safety scheme shall be controlled by position limit switches on each of the lock filling and emptying valves and the miter gates and prevent motor operation as long as the position of all the valves and miter gate equipment on the opposite end of the lock is not fully "closed". As soon as the design conditions are met, the safety scheme shall automatically reset, allowing immediate operation.

d. Annunciation. The equipment positions and emergency stop button shall be continuously monitored by the computer control system and all abnormal conditions annunciated as alarms on the OIs.

3.5.6 Drive Systems

3.5.6.1 Miter Gate. Each miter gate is comprised of two leaves, with each leaf operated by the motive power of an individual two-speed, reversible electric motor and reducer configuration. The Contractor shall design, including installation drawings, furnish, install, program, and commission a rehabilitation of the existing drive configuration to include the function of new variable frequency drives (VFDs), new inverter-duty-rated electric motors, new thruster brakes, and new encoders. The operation of the two drives for each miter gate shall be synchronized by a fiber optic communications link.

3.5.6.2 Tow Haulage. The Contractor shall design, including installation drawings, furnish, install, program, and commission a rehabilitation of the existing drive configuration to include the function of new variable frequency drive (VFDs), new inverter-duty-rated electric motor.

3.5.6.3 Variable Frequency Drives. The VFDs shall convert incoming fixed frequency, three-phase AC power into a variable frequency and voltage for controlling the speed of standard three-phase AC induction motors. The motor current shall closely approximate a sine wave. Motor voltage shall be varied with frequency to maintain desired motor magnetization current suitable for control of constant or variable torque loads. The VFD shall use 32-bit microprocessor based digital control technology and application specific integrated circuits (ASICs) to regulate motor operation. An advanced sine wave approximation and sensor less vector control shall be used to allow operation at rated motor shaft output at nominal speed with no de-rating. Means shall be provided for local and remote operation. There shall be a removable back lighted four-line LCD alphanumeric local control panel capable of displaying fault conditions, and suitable selectors to allow the display of operating conditions, set up of parameters and VFD configuration. The local control panel shall be removable while the drive is running. The local control panel shall be capable of uploading and downloading parameter data from one drive to the next. The drives shall be field bus compatible in order to monitor, control, and collect specified data available from the PC-and-OI networks. The VFD manufacturer shall maintain a network of factory trained, authorized service centers.

OFFERING: (0010 – Drive Systems: Variable Frequency Drives)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.6.4 Inverter-Duty-Rated AC Electric Motors. All motors supplied under the provisions of these specifications shall comply with the following general requirements and shall have technical and operational characteristics for a complete rehab to facilitate a complete design for the new drive systems. The current motive power for the lock miter gates consists of a two-speed electric motor with reducer. The existing two-speed motors are rated 25HP/8.33 HP, NEMA D. The current motive power for the Tow Haulage consists of a variable peed motor connected to a gear reducer box. Field verification is the responsibility of the Contractor.

a. Motors shall generally conform to the applicable portions of NEMA Publication MG-1.
b. All motors furnished under these specifications shall be reversible.
c. The Contractor shall submit six copies of certified standard factory test reports on one of the motors to be supplied, or an identical duplicate unit, to demonstrate compliance with the requirements of this specification.
d. The motors shall be rated for marine duty meeting the applicable standards.
e. The Contractor shall exercise care with metal and platings to ensure that dissimilar metal problems are not encountered.
f. Re-greasable bearings with shaft seal (waterproof).
g. Removable drain plugs.
h. Rotor and stator laminations shall have a corrosion resistant coating.
i. Motor winding (single voltage winding) conductors shall have as a minimum Super F insulation.
j. Motors shall be rated for 50°C (122°F) maximum ambient temperature.
k. The motors shall be equipped with "non-wicking" lead insulation to preclude moisture penetration.
l. The motors shall have a 30-minute duty rating with a service factor of 1.0. The motors shall also be able to withstand a minimum of 5 starts over any 15- minute period.
m. All motors of each size shall be identical and interchangeable.

n. The motors shall be of the foot type for floor mountings.
o. Motors shall have suitable non-drive end tapered shaft for coupling to separate foot type brakes. Motors shall be compatible with brakes specified in these specifications. The motors shall be equipped with similar bearings on either end, which will allow the rotor to be reversed in the horizontal plane with respect to the stator. If this requirement is not met, the Contractor shall provide some other acceptable and convenient means for Government personnel in the field to exchange the location of the connection box without violating the marine duty rating of the motors.
p. Motors shall be provided with stress proof shafts.
q. Motors shall operate successfully at rated load under the following conditions: (System voltage – 480v)

    (1) + 10% variation of rated voltage at rated frequency.
    (2) + 5% variation of rated frequency at rated voltage.
    (3) Any combined variation in voltage and frequency of +10% of the rated values, provided the frequency variation does not exceed +5%.

r. For this contract the Government will not accept T-frame motors.
s. One of the motors to be furnished under this contract will be designated as a spare motor by the Government. This spare motor shall be prepared and packaged by the motor manufacturer for long-term storage at the project site. The motor manufacturer shall provide with this motor all instructions regarding any special unpacking and preparation procedures required before putting the spare motor into operation.

OFFERING: (0010 – Drive Systems: Inverter-Duty-Rated AC Electric Motors)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.6.5 Thruster Brakes. The brakes shall be electro-hydraulic operated shoe brakes with the electro-hydraulic operator integral with the brake. All brakes supplied under the provisions of these specifications shall comply with the following general requirements and shall have technical and operational characteristics for a complete rehab to facilitate a complete design for the new miter gate drive system.

a. Frame shall be arranged for floor mounting.
b. Limit switch on brake release to indicate position.
c. Brake shall be spring set – power released so the brake is set when the power is off.
d. Shoes shall be self-aligning and self-adjusting for lining wear through the life of the lining.
e. Brake shall have step less external torque adjustments down to 40% of rated torque with calibrated torque indicators.
f. Brake linings shall be non-asbestos material bonded to quick replacement shoes. Replacement shall not require brake disassembly.
g. Electro-hydraulic operator stator windings shall be epoxy encapsulated.
h. Brake mechanism and hydraulic-operator shall have an operating range of 0°F (-18°C) to 122°F (50°C) with standard fluid.
i. All pivot points shall have sealed, lubricated needlepoint bearings.
j. A manual release shall be provided and shall be self-resetting.
k. Electro-hydraulic operator shall be provided with a step less externally adjustable time delay on brake setting with a range of at least 0.5 to 8 seconds.
l. Brake shall operate on 460-volt, 3-phase, 60-hertz electrical power.
m. Motor operator stator to be vacuum encapsulated.

n. Brake torque range shall be 220-550 lb-feet – 13" brake. Contractor shall be required to verify during design phase.
o. Wheel specifications: Each brake shall be provided with the appropriately sized wheel. Contractor shall be required to verify during design phase.

(1) 13" brakes
(2) Constructed of ductile iron
(3) Provided with offset hub
(4) All units shall be supplied with pilot hole for machine fitting in the field.

OFFERING: (0010 –Drive Systems: Thruster Brakes)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.6.6 Encoders. The encoders for position indication shall meet the following minimum performance specifications.

a. Advanced magneto-resistive sensing technology.
b. Hollow shaft design eliminates the need for adjustments.
c. Easy mounting without the need of a flexible shaft coupling.
d. Solid construction to withstand harsh environments.
e. High response frequency (200 kHz).
f. Resolutions up to 2048 PPR.

OFFERING: (0010 – Drive Systems: Encoders)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.7 Miscellaneous Materials and Equipment.

3.5.7.1 Multi-conductor Power and Control Cable.

3.5.7.1.1 General. (See also paragraph 3.5.2.9 for Fiber Optic (FO) Cable). All wire and cable used for power, lighting, control, metering, relaying, and for signal/communications systems shall conform to the requirements specified herein. Characteristics, including conductor size, stranding, number of conductors, rated circuit voltage, cabling and other requirements for each type of service, shall be specified under the detailed requirements of these specifications for the particular construction or use, unless otherwise stated in the accompanying wire table.

3.5.7.1.2 Characteristics of Systems on Which Cable Is To Be Used.

a. Normal operating voltages for power and control conductors – 120, 240, and 480-volts.
b. Frequency – 60 Hertz.
c. Number of phases and conductors – 1 phase, 3 phase, and 3 wire systems.

d. Minimum and maximum temperatures at which cable is expected to be operated – (-20°C through 50°C).
e. Description of installation – Cable trays, and exposed and embedded conduit.
f. Conditions of installation – Wet locations with exposure to oils, solvents, and sunlight.

3.5.7.1.3 Applicable Specifications and Standards. The following publications of the issues listed below, but referred to hereafter by basic designation only, form a part of this specification to the extent specified herein. Date of the standards shall be the latest in effect at the time of bidding. It shall be the contractor's responsibility to cross-reference the NEMA standards with those of the Insulated Cable Engineers Association (ICEA) standards and to verify those standards that have been replaced or which are new joint-standards.

a. National Electrical Manufacturers Association (NEMA) Publications.

1) No. WC 7: Cross-Linked-Thermosetting-Polyethylene- Insulated Wire and Cable for the transmission and distribution of electric energy.
2) No. WC 8: Ethylene-Propylene-Rubber-Insulated Wire and Cable for the transmission and distribution of electric energy.

NOTE: WC 7 is a NEMA-sponsored issue of Insulated Cable Engineers Association (ICEA) Publication No. S-66-524. WC 8 is a NEMA-sponsored issue of ICEA Publication No. S-68-516. Use replacement joint standards where applicable.

b. Institute of Electrical and Electronic Engineers (IEEE) Standards.

No. 383: Standard for Type Test of Class IE Electric Cables, Field Splices, and Connections for Nuclear Power Generating Stations.

c. Governing Standards. Materials, construction, fabrication, and tests, unless otherwise specified, shall conform to the applicable requirements of NEMA WC 7 and NEMA WC 8. The referenced parts only of IEEE Standard 383 and AEIC CS5 and CS6 form a part of this specification.

3.5.7.1.4 Rated Circuit Voltages. All A-C power and control wire and cable shall have a minimum rated circuit voltage of 600-volts.

3.5.7.1.5 Conductors (A-C Power and Control).

a. Material. Conductors shall conform to all the applicable requirements of Section 2 of NEMA WC 7 or Part 2 of WC 8 as applicable and shall be annealed copper. Copper conductors may be bare, or tin- or lead-alloy-coated, if required by the type of insulation used.

b. Size. Minimum wire size shall be No. 12 AWG for power and lighting circuits; No. 10 AWG for current transformer secondary circuits; No. 14 AWG for potential transformers, relaying, and control circuits; No. 16 AWG for annunciator circuits.

c. Stranding. Conductor stranding classes cited herein shall be as defined in Appendix L of NEMA WC 7 or WC 8, as applicable. Lighting conductors No. 10 AWG and smaller shall be solid or have Class B stranding. Any conductors used between stationary and moving devices, such as hinged doors or panels, shall have Class H or K stranding. All other conductors shall have Class B or C stranding, exception for No. 12 AWG may be 19 strands of No. 25 AWG, and No. 10 AWG may be 19 strands of No. 22 AWG.

d. Separator Tape. Where conductor shielding, strand filling, or other special conductor treatment is not required, a separator tape between conductor and insulation is permitted.

3.5.7.1.6 Insulation (A-C Power and Control).

a. Insulation Material. Insulation shall be cross-linked thermosetting polyethylene (XLPE) type, meeting the requirements of Section 3 or paragraph 7.7 of NEMA WC 7 as applicable, or an ethylene-propylene-rubber (EPR) type meeting requirements of Part 3 of NEMA WC 8.

b. Insulation Thickness. The insulation thickness for each conductor shall be based on its rated circuit voltage.

1). Power Cables and Single-Conductor Control Cable, Rated 2,000-Volts and below. The insulation thickness for single-conductor cables rated 2,000-volts and below shall be as required by Table 3-1, Section 3 of NEMA WC 7 or Table 3-1, Part 3,or NEMA WC 8, as applicable. Column "A" thickness of Table 3-1 of NEMA of WC 7 shall be permitted only for single-conductor cross-linked thermosetting polyethylene insulated cables without a jacket. NEMA WC 8 ethylene-propylene rubber-insulated conductors shall have a jacket. Column "B" thickness shall apply to single-conductor cables that require a jacket and to individual conductors of multiple-conductor cables with an overall jacket.

2). Multiple-Conductor Control Cables. The insulation thickness of multiple-conductor cables used for control and related purposes shall be as required by Table 7-32 of NEMA WC 7 or Table 7.5.1 of NEMA WC 8 as applicable.

3.5.7.1.7 Jackets (A-C Power and Control).

a. Jackets. All cables shall have jackets meeting the requirements of Section 4 of NEMA WC 7, or Part 4 of NEMA WC 8, as applicable, and as specified herein. Individual conductors of multiple-conductor cables shall be required to have jackets only if they are necessary for the conductor to meet other specifications herein. Jackets of single-conductor cables and of individual conductors of multiple-conductor cables shall be in direct contact and adhere or be vulcanized to the conductor insulation. Multiple-conductor cables shall be provided with a common overall jacket, which shall be tightly and concentrically formed around the core. Repaired jacket defects found and corrected during manufacturing are permitted if the cable, including jacket, afterward fully meets these specifications and the requirements of the applicable standards.

b. Jacket Material. The jacket shall be one of the materials listed below, in accordance with the paragraphs cited in parentheses below, of NEMA WC 8.

General Use:

1) Heavy-duty black neoprene (4.4.3).
2) Heavy-duty chlorosulfonated polyethylene (4.4.10)
3) Heavy-duty cross-linked (thermoset) chlorinated polyethylene (4.4.11).

c. Jacket Thickness. The minimum thickness of the jackets at any point shall be not less than 80 percent of the respective nominal thickness specified below.

1) Multiple-Conductor Cables. Thickness of the jackets of the individual conductors of multiple-conductor cables shall be as required by Section 4, Table 4-6 of NEMA WC 7 or Part 4, Table 4-4 of NEMA WC 8, and shall be in addition to the conductor insulation thickness required by Column "B" of Table 3-1 of the applicable NEMA publication for the insulation used. Thickness of the outer jackets or sheaths of the assembled multiple-conductor cables shall be as required by Section 4, Table 4-7 of NEMA WC 7 or Part 4, Table 4-5 of NEMA WC 8.

2) Single-Conductor Cables. Single-conductor cables shall have a jacket thickness as specified in Section 4, Table 4-4 of NEMA WC7 or Part 4, Table 4-2 of NEMA WC 8.

3.5.7.1.8 Control Panel and Enclosure Wiring. Control panel and enclosure wire shall be stranded copper switchboard wire with 600-volt insulation. The wire shall be Type SIS as listed in ANSI/NFPA 70 and shall meet the requirements of UL 44. Hinge wire shall have class K stranding.

3.5.7.1.9 Grounding Cables. Grounding cables shall be bare or insulated as required. Insulated cable shall be green color-coded, rated for 600-volts, and meet all applicable requirements of these specifications. Bare cables shall be ASTM B 8 soft-drawn copper.

3.5.7.1.10 Identification: Color-coding. Insulation of individual conductors of multiple-conductor cables shall be color-coded in accordance with paragraph 5.3 of NEMA WC 8, except that colored braids shall not be permitted. Only one color-code method shall be used for each cable construction type. Control cable color-coding shall be in accordance with Appendix K, Table K-2 of NEMA WC 8. Where grounded and/or grounding conductors are used in a control cable, they shall be colored white or green, respectively, and inserted in the specified color code as the second and/or third designated conductor in the first sequence of circuit identification only, in accordance with the National Electrical Code. Power cable color-coding shall be BLACK for Phase A, RED for Phase B, BLUE for Phase C, WHITE for Grounded Neutral, and GREEN for an insulated Grounding Conductor, if included.

3.5.7.1.11 Cabling. Individual conductors of multiple-conductor cables shall be assembled with flame-and moisture-resistance fillers, binders, and a lay conforming to Part 5 of NEMA WC 8, except that flat twin cables shall not be permitted. Fillers shall be used in the interstices of multiple-conductor round cables with a common covering where necessary to give the completed components of the cable a substantially circular cross section. The rubber-filled or other approved type of binding tape shall consist of a material that is compatible with the other cable. Fillers shall be non-hygroscopic material, compatible with the cable insulation, jacket, and other components of the cable and shall be lapped at least 10 percent of its width.

3.5.7.1.12 Dimensional Tolerance. The outside diameters of single-conductor cables and of multiple-conductor cables shall not vary more than 5 percent and 10 percent, respectively, from the manufacturer's published catalog data.

3.5.7.1.13 Inspection and Tests.

a. Inspection and Tests. Inspection and tests of wire and cable furnished under these specifications shall be made by and at the plant of the manufacturer, and shall be witnessed by the Contracting Officer or his authorized representative, unless waived in writing. The Government may perform further tests before or after installation. Except for signal and communication cables, testing in general shall comply with Section 6 of NEMA WC 7 or Part 6 of WC 8. Specific tests required for particular materials, components, and completed cables shall be as specified in the sections of above standards applicable to those materials, components, and cable trays. Tests shall also be performed in accordance with the additional requirements specified below.

b. High-Voltage Test Source. Where the applicable standards allow a choice, high-voltage tests for cables to be used exclusively on dc circuits shall be made with dc test voltages. Cables to be used exclusively on ac circuits shall be tested with ac test voltages. If both ac and dc shall be present, on either the same or separate conductors of the cable, ac test voltages shall be used.

c. Flame Tests. Except for signal and communication cables, all multiple-conductor and single-conductor cable assemblies shall pass the IEEE Standard 383 flame tests, paragraph 2.5, using the ribbon gas burner. Single-conductor cables and individual conductors of multiple-conductor cables shall pass the flame test of NEMA WC 7, paragraph 7.7.3.1.3. If such tests, however, have previously been made on identical cables, these tests need not be repeated. Instead, certified reports shall verify that all of each cable's materials, construction, and dimensions are the same as those in the qualifying tests.

d. Independent Tests. The Government may at any time make visual inspections, continuity or resistance checks, insulation resistance readings, power factor tests, or dc high-potential tests at field test values. A cable's failure to pass these tests and inspections, or failure to produce readings consistent with acceptable values for the application, shall be grounds for rejection of the cable.

e. Reports. Three certified copies of reports indicating the results of tests made shall be furnished. No wire or cable shall be shipped until authorized. Lot number and reel or coil number of wire and cable tested shall be indicated on the test reports.

3.5.7.1.14 Installation Instructions. The cable manufacturer for each size, conductor quantity, and type of cable furnished shall provide the following information:

a. Minimum bending radius, in inches. For multiple-conductor cables, this information shall be provided for both the individual conductors and the multiple-conductor cable.

b. Pulling tension and sidewall pressure limits, in pounds.

c. Instructions for stripping semi-conducting insulation shields, if furnished, with minimum effort without damaging the insulation.

d. Upon request, compatibility of cable materials and construction with specific materials and hardware manufactured by others shall be stated. Also, if requested, recommendations shall be provided for various cable operations, including installing, splicing, terminating, etc.

3.5.7.1.15 Packaging and Marking. The cables shall be furnished one length (minimum 500 ft.) to a reel or coil. Each length, and the outside of each reel or coil, shall be plainly marked or tagged to indicate the cable length, voltage rating, conductor size, and manufacturer's lot number and reel number. Cables for exclusively dc applications shall be identified as such.

3.5.7.1.16 All cable reels shall remain the property of the government.

3.5.7.2 Magnetic Contactors and Starters. Magnetic contactors and starters shall have the following minimum specifications.

a. Magnetic contactors shall be of the NEMA sizes appropriate for the horsepower application. The rating, performance, and service characteristics shall conform to the requirements of NEMA ICS 2 for contactors with continuous current ratings for the duty indicated. Contactors for motor control shall be rated for full-voltage starting (Class A controllers). Contactors shall be suitable for at least 200,000 complete operations under rated load without more than routine maintenance. The contacts shall be easily removable. All current-carrying contact surfaces shall be silver-surfaced or of other approved material to prevent the formation of high resistance oxides. The contactor shall operate without chatter or perceptible hum while energized. Coils shall be suitable for continuous operation circuits. AC contactors shall be three-pole, except where otherwise noted, and shall be insulated for 600 volts ac, and be of the electrically operated, magnetically held type.

b. Each controller shall be provided with a minimum of three auxiliary contacts, which shall be field changeable from normally open to normally closed. Additional contacts and indicating lights shall be provided as required.

c. Unless otherwise required, each controller shall be provided with a minimum of three NEMA Class 20 thermal overload relays with external manual reset. Prior to shipment of the controller panels, the Contactor shall install appropriate rated heater elements in the relays.

d. The magnetic starters shall be field bus compatible in order to monitor, control, and collect specified data available from the PC-and-OI networks.

OFFERING: (Contactors and Starters)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.7.3 Molded Case Circuit Breakers.

a. General. Molded case circuit breakers shall conform to the applicable requirements of NEMA AB 1 and UL 489. The circuit breakers shall be manually operated, shall be quick-make, quick-break, common trip type, and shall be of automatic-trip unless otherwise required. All poles of each breaker shall be operated simultaneously by means of a common handle. The operating handles shall clearly indicate whether the breakers are in the "ON", "OFF", or "TRIPPED" position and shall have provisions for padlocking in the "OFF" position. Personnel safety line terminal shields shall be provided for each breaker. The circuit breakers shall be products of only one manufacturer, and shall be interchangeable when of the same frame size. As required, circuit breakers shall be provided with shunt trip devices. Additionally, as required, circuit breakers shall be provided with bell alarm contacts that close on automatic operation only. The contacts shall be suitable for 125 volts dc/250 volt ac and shall reset when the breaker is reset.

b. Trip Units. Unless otherwise required, circuit breakers shall be provided with combination thermal and instantaneous magnetic or solid-state trip units. The breaker trip units shall be interchangeable and the instantaneous magnetic trip units shall be adjustable on frame sizes larger than 150 amperes. Nonadjustable instantaneous magnetic trip units shall be set at approximately 10 times the continuous current ratings of the circuit breakers.

c. 480-Volt AC Circuits. Molded case circuit breakers for 480-volt ac circuits shall be rated 600-volts ac and shall have a minimum NEMA interrupting capacity of 42,000 amperes ac.

OFFERING: (480-v AC Breakers)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

d. 120-Volt AC Circuits. Circuit breakers for 120-volt ac circuits shall be rated not less than 120/240 or 240-volts ac, and shall have a UL listed minimum interrupting capacity of 10,000 amperes ac.

OFFERING: (120-v AC Breakers)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

e. 125-Volt DC Circuits. Circuit breakers for 125-volt dc circuits shall be two-pole rated 125/250 or 250-volts dc, and shall have a UL listed minimum interrupting capacity of 10,000 amperes dc.

OFFERING: (125-v DC Breakers)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.7.4 Terminal Blocks.

a. General. The terminal blocks shall be of the cage clamp style. They shall be front entry and DIN rail mounted. The terminal block shall be of proper size to accommodate required wiring. Only one wire is to be placed under a terminal

b. Markings. Terminal blocks shall be provided with identification marking strips.

c. Spares. Terminal blocks shall be provided with minimum of 15% unused, available terminals.

OFFERING: (Terminal Blocks)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.7.5 Control Transformers. Where control transformers are required for the 120-volt ac operation of the contactors and associated control devices, transformers of appropriate volt-ampere capacity shall be provided. The control transformers shall be rated 480/120-volts and Class A insulated. All transformer windings shall be copper.

OFFERING: (Control Transformers)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.7.6 Control Relays. Multi-pole auxiliary relays for 120-volt control circuits shall have contacts rated 600-volts ac and 10 amperes continuous current carrying capacity.

OFFERING: (Control Relays)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.5.7.7 Control Devices. Control push buttons and selector switches shall be of the heavy-duty type, rated 600-volts ac and 10 amperes continuous current carrying capacity. The momentary contact rating and interrupting rating shall be 60 amperes at 120-volts ac.

OFFERING: (Control Devices)

MANUFACTURER'SNAME_____
BRAND_____
MODEL OR PART NO._____

3.5.7.8 Power Supply Units. The power supply units shall meet the following minimum specifications:

a. 120-volts ac / 24-volts dc; 2 amperes.
b. LED output voltage indication.
c. Universal mounting carrier, 115-volts ac / 24-volts dc.
d. Cage clamp terminal strips, 230-volts ac / 24-volts dc.

OFFERING: (Power Supply Units)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.6 Scope of Services.

3.6.1 General. The Offeror shall prepare in accordance with this solicitation a proposal(s) for all services necessary for the rehabilitation of the existing lock control system and specified electrical equipment. The Government will be utilizing a Two-Phase Design-Build Selection Process with this solicitation and in awarding of the contract. Proposals will be evaluated in Phase One to determine which offerors will submit proposals for Phase Two. One contract will be awarded using competitive negotiation. As a minimum and as part of the Offeror's proposal(s), the following shall be furnished:

a) Prepare a single line schematic/block diagram of the proposed PC-based Lock Control System and Operator Interface Networks.

b) Furnish manufacturer's brochures, bulletins, catalog cuts, and descriptive technical data for essential proposed materials and equipment. As a minimum, furnish catalog cuts for the PC-based Lock Control System and Operator Interface Network major components, variable frequency drive(s), fiber optic network cable, and software packages.

c) Prepare a Design-Build Schedule (timeline-date format with major activities identified) for completion of all contractual services.

d) Other items as required by Section M, Evaluation Factors For Award.

The Contractor shall render the following minimum services for completion of this contract: engineering, design, technical support, construction management, procurement, panel fabrication/assembly, installation, programming, startup, testing, and commissioning in accordance with generally accepted and currently recognized engineering practices, procedures, and principles and construction standards in order to furnish a complete design-build, turnkey project. The Contractor shall perform any such services not meeting the aforesaid standard at no additional cost to the Government.

The Contractor shall provide the following minimum deliverable tasks; tasks are not listed in sequential or hierarchical order:

3.6.2 Deliverable Tasks.

Task 1 - Prepare a Quality Control Plan (QCP) within 2 weeks after contract is awarded and Notice-to-Proceed (NTP) is given.

Task 2 - Engineer and design a new state-of-the-art, off-the-shelf, PC-based Lock Control System as rehabilitation for the existing lock control system.

Task 3 - Engineer and design a new state-of-the-art, off-the-shelf, Operator Interface Network as rehabilitation for the existing operator benchboard system. The network is to be fully integrated and compatible with the PC-based Lock Control System listed in Task 2 above.

Task 4 - Engineer and design a new minimal hard-wired safety backup system for the PC-based Lock Control System and Operator Interface Network listed in Tasks 2 and 3 above.

Task 5 - Engineer and design a new miter gate drive system as a rehabilitation for the existing miter gate drive system to include new VFDs, new inverter-rated-duty ac electric motors, new thruster brakes, new encoders, associated conduit, wire, and cable.

Task 6 - Prepare conventional detailed construction drawings/plans (demolition and installation) to be used for installation, operation, and maintenance.

Task 7 - Furnish as-built drawings within 6 weeks of project completion and project acceptance by the Government.

Task 8 – Configure, program, and provide start-up, testing, and commissioning services, and furnish final documentation of the (1) PC-based Lock Control Network, (2) Operator Interface System Equipment (including operator monitoring and control screens), (3) Input/Output System, (4) Miter Gate Drive System/Variable Frequency Drives, (5) Water Level Monitoring System, (6) Weather Monitoring System, (7) Miter Gates, Culvert Valves, and Tow Haulage Operations, (8) Peripheral Lock Equipment, and (9) Hard-wired Safety System all as described herein, and overall coordination and programming as required to furnish a completely integrated, fully compatible, and interoperable control and monitoring system.

Task 9 - A factory acceptance test(s) shall be performed by the Contractor as part of the contract and shall be witnessed by Government personnel before equipment is shipped to Nickajack Lock. A notice of 10 working days shall be given to the Government for notification of the factory acceptance test(s), date(s), location, and times. Equipment or networks to be included in the factory acceptance test(s) are as follows, as a minimum: (1) PC-based Lock Control Network with application software package, (2) Operator Interface system equipment with application software package and OI screens (control and monitoring functions) as developed for operation at Nickajack Lock, (3) Input/Output system, including proposed open, device-level I/O field buses and field bus sensors/instrumentation, (4) Fiber optic network and interface equipment, (5) Variable Frequency Drives (VFD), and (6) Inverter-rated duty ac electric motors.

Task 10 - Furnish on-site training for Government personnel as indicated herein.

Task 11 - Shop fabricate/assemble and wire components, such as power supplies, electronic modules, push buttons, indication/control meters, terminal blocks, and breakers in appropriate panel cabinets complete with identification labels and ship complete to Nickajack Lock ready for Contractor field mounting and wire/cable terminations. Cabinet mounting locations and dimensions shall be delineated on the installation drawings.

Task 12 - Perform site visits to Nickajack Lock as required for field verification of existing lock drawings and to gather necessary performance, operational, and physical data to facilitate in the completion of Contractor services such as, engineering, design, procurement, panel fabrication/assembly, installation, startup, testing, commissioning, and system programming services.

Task 13 - Procure and deliver to the lock project all materials and equipment in accordance with contract award and final design documents.

Task 14 – Furnish manufacturer’s operating and maintenance manuals for the PC-based Lock Control System and Operator Interface Networks and other major equipment. Besides the basic recommended operating and maintenance data, these manuals shall also include manufacturer’s name, address location, and telephone number(s) for technical point(s)-of-contact for operation, maintenance, and troubleshooting assistance.

Task 15 – Program, install, startup, test, and commission the PC-based Control System and specified electrical equipment as stated and contracted for in these specifications and solicitation.

3.6.3 PC-based Lock Control Network Configuration and Programming.

3.6.3.1 General. The Contractor shall provide such services as required to configure and program all PC-based Lock Control System Network equipment

3.6.3.2 General Locking Procedures. The lock control features shall be generally as described below. These locking procedures are furnished for information only, and are the responsibility of the Contractor to coordinate with the Lockmaster at Nickajack Lock for verification to facilitate proper network configuration and programming and subsequent monitoring and operation capabilities.

Each of the following steps for the general locking procedures are to be initiated by the operator from the control stations. Each of the miter gates, culvert valves, and the tow haulage unit shall be provided with manual control, which bypasses all automatic control except over-travel and emergency stop.

a. Upstream Locking (Lower to Higher Elevation).

1) The process is initiated by a craft in the lower pool (tailwater) communicating a desire to make passage to upper pool (headwater) by radio, telephone, and/or by small craft warning system (pull-cord notification).
2) The operator manually lowers the chamber water level to match the tailwater level utilizing the emptying valves opening operation initiated from either the upstream or downstream control station.
3) The operator manually opens the downstream miter gate to the recess (fully opened) position by initiating the variable frequency drives which ramps both miter gate leaves gradually up to full speed. As the gate leaves approach fully open, they are ramped down and braked to a gradual stop by the variable frequency drives and de-energized. Operation is initiated from the downstream control station.
4) The craft enters the lock chamber.
5) The operator manually closes the downstream miter gate to the closed (fully mitered) position behind the craft by initiating the variable frequency drives which ramps both miter gate leaves gradually up to full speed. As the gate leaves approach fully mitered, they are ramped down and braked to a gradual stop by the variable frequency drives and de-energized. Operation is initiated from the downstream control station.
6) The operator manually closes the emptying valves to the closed position utilizing the emptying valves closing operation initiated from either the upstream or downstream control station.
7) The operator manually raises the chamber water level, with the craft; to match the headwater level utilizing the filling valves opening operation initiated from either the upstream or downstream control station.
8) The operator manually opens the upstream miter gate to the recess (fully opened) position by initiating the variable frequency drives which ramps both miter gate leaves gradually up to full speed. As the gate leaves approach fully open, they are ramped down and braked to a gradual stop by the variable frequency drives and de-energized. Operation is initiated from the upstream control station.
9) The craft, if un-powered, is secured to the tow haulage winch unit. The point of attachment is a traveling rail-mounted bitt, referred to as the “mule”.
10) The “mule” to its normal automatic stop position tows the craft. The operator then manually overrides the normal stop, running the “mule” past a ramp, which removes the attached towrope from the “mule”.

11) Once the craft is clear of the lock, the operator manually closes the upstream miter gate to closed (fully mitered) position by initiating the variable frequency drives which ramps both miter gate leaves gradually up to full speed. As the gate leaves approach fully mitered, they are ramped down and braked to a gradual stop by the variable frequency drives and de-energized. Operation is initiated from the upstream control station.

b. Downstream Locking (Higher to Lower Elevation).

1) The process is initiated by a craft in the upper pool (headwater) communicating a desire to make passage to lower pool (tailwater) by radio, telephone, and/or by small craft warning system (pull-cord notification).
2) The operator manually raises the chamber water level to match the headwater level utilizing the filling valves opening operation initiated from either the upstream or downstream control station.
3) The operator manually opens the upstream miter gate to the recess (fully opened) position as previously described.
4) The craft enters the lock chamber.
5) The operator manually closes the upstream miter gate to the closed (fully mitered) position behind the craft as previously described.
6) The operator manually lowers the chamber water level to match the tailwater level utilizing the emptying valves opening operation initiated from the upstream or downstream control station.
7) The operator manually opens the downstream miter gate to the recess (fully opened) position as previously described.
8) The craft, if un-powered, is towed from the lock chamber as previously described.
9) The operator manually closes the downstream miter gate to the closed (fully mitered) position behind the craft as previously described. The lock is ready for the next lockage operation.

3.6.3.3 Interlocks. The following special interlocks shall be programmed.

a. The downstream emptying valves or miter gate shall not be operable unless the upstream filling valves and miter gate are closed. (Input for this interlock is from the hard-wired safety system. See paragraph 3.5.5).

b. The upstream filling valves or miter gate shall not be operable unless the downstream emptying valves and miter gate are closed. (Input for this interlock is from the hard-wired safety system. See paragraph 3.5.5).

c. On all culvert valves and miter gates are over-travel protection from the hard-wired safety system.

d. Interlock bypass shall be via two inputs, one on each operator benchboard at each control shelter by means of a key operated selector switch.

3.6.3.4 Audible Alarms and Visual Indicators. The following audible alarms and visual indicators shall be programmed.

a. Alarm-Reset Push Buttons.

1) An alarm-reset push button shall be provided at each control station for acknowledging and silencing alarms. This button shall reset one alarm at a time whenever multiple alarms exist.

2) Trip reset feature. The alarm-reset buttons shall be used to reset trips, which occur on the hard-wired safety (HWS) system. If the condition that originally caused the trip is corrected, then the equipment shall be returned to normal operation.

b. Alarm Operation.

1) An alarm visual screen(s) and an audible alarm device shall be located on the Operator Interface (OI) displays at each control station and the lock operations building. Annunciation shall be "ON" only when an alarm condition exits.
2) Once activated, audible and visual alarms shall remain until acknowledged by lock personnel via an alarm-reset push button. Once acknowledged, the visual alarm shall remain energized until the condition is corrected and then de-energized. If the alarm reoccurs or another separate alarm occurs before the condition is corrected, then the audible alarm shall be reactivated.
3) Depressing the alarm-reset button shall silence the audible alarm signal.

c. Brakes. Brakes on the miter gates have a separate contactor and shall be controlled by a dedicated PC output from the computer. The brakes are to be set when de-energized. A limit switch on the brake shall be used to verify the brake position, and an alarm shall be initiated if the brake is, or is not, set at the appropriate time.

d. Emergency Stop. The system shall be programmed in such a manner that when an emergency stop input is energized, all rotating equipment controlled by the PC-based control network, except lube oil pumps, shall be deactivated. Miter gates and culvert valves shall have their brakes applied. A visual indicator in each OI shall indicate which emergency stop (E-stop) button has been activated. The E-stop shall override all interlocks and shall remain until the E-stop input(s) have been reset – at which time normal operation shall be restored.

NOTE: This system is also backed up by the HWS system, which shall also stop the operating machinery. Refer to paragraph 3.5.5, Hard-wired Safety System, for information on the machinery operation interlock system requirements.

e. Operator Interface Audible Alarms. A single audible alarm for each of the OIs located in the control stations and lock operations building, shall be programmed to operate from a PC-controlled output as described hereinafter. The output pulsing for each alarm shall be software adjustable – see table below.

Alarm	Alarm Description
a. Tow haulage end of travel	½ second ON, ½ second OFF; repeating until reset or override button is reset.
b. Small craft	One second ON, 2 seconds OFF; repeating until acknowledged or until 5 minutes have elapsed.
c. Alarm	Solid blasts, repeats until acknowledged.

f. Outdoor Audible Alarm. An outdoor audible alarm shall duplicate the alarms listed for the OI audible alarms.

g. Local Audible Alarms for Small Craft. An audible alarm shall be energized to indicate that the pull rope has been activated. This audible indicator shall be energized when the small craft pull rope has been pulled and shall remain until the rope is released or a timer has timed out, whichever comes first.

h. Disable. The operator shall depress the OI's "DISABLE" button associated with any piece of equipment in the major lock equipment group, defined in paragraph 3.5, to prevent it from operating from the open/stop/closed buttons. Once disabled, the appropriate visual indicator shall be illuminated and the equipment shall remain inoperable until the OI's "DISABLE" button is depressed the second time. The visual indicator shall be de-energized and the equipment shall be returned to normal operation.

i. Miter Gate Over-Travel Limit Switches. The following shut down alarms shall be indicated on the OI displays at each control station and the lock operations building.

- Strut arm over-travel: opening and closing positions
- Gate over-travel: opening and closing positions

3.6.3.5 Miter Gates, Culvert Valves, and Tow Haulage Unit Operations.

3.6.3.5.1 General. Equipment shall be operated in the following major groups.

a. Filling valves (two each)
b. Emptying valves (two each)
c. Miter gates (two each); i.e., miter gate leaves (four each)
d. Tow haulage unit (one each)

3.6.3.5.2 Filling Valves. Operator shall be able to open or close the filling valves at either of the two new OI control stations located within the existing control shelters. The respective new remote OI panel located in each filling valve machinery recess shall operate that particular valve only. The operator shall be able to open the filling valves only when the emptying valves are closed, when the downstream (lower) miter gate is closed (mitered), and when the emergency stop buttons are not depressed (activated). This operational interlock shall be achieved by a hard-wired relay system which shall be set up so that it can only be bypassed by means of key operated selector switch. Refer to paragraph 3.5.5, Hard-wired Safety System, for information on the machinery operation interlock system requirements.

Valve control shall be as follows ("buttons" refer to touch screen commands):

a. Both filling valves shall be capable of being operated simultaneously by the "OPEN/CLOSED/STOP" buttons located in the OIs. Depressing the "OPEN" or "CLOSED" buttons in the OI shall activate outputs to start the hydraulic power units and open or close the valves as required.

b. Depressing the stop button shall reverse the process described above, bringing the machinery to a stop.

c. Manual stops and restarts of either valve shall be allowed at any intermediate valve position.

d. Disable. If the operator desires to operate selected equipment, he shall be able to disable the operation of any or all valves by depressing the respective "DISABLE" button. Each valve shall have its own "DISABLE" button, and a visual indicator shall be energized to indicate that the device is disabled.

Depressing the "OPEN" or "CLOSED" button shall only operate that equipment which has not been disabled. To return the equipment to the normal mode, the operator shall depress the "DISABLE" button the second time. The visual indicator shall go out and the equipment returned to normal operation (i.e., push "ON" / push "OFF" button).

3.6.3.5.3 Emptying Valves. Operator shall be able to open or close the emptying valves at either of the two new OI control stations located within the existing control shelters. The respective new remote OI panel located in each emptying valve machinery recess shall operate that particular valve only. The operator shall be able to open the emptying valves only when the filling valves are closed, when the upstream (upper) miter gate is closed (mitered), and when the emergency stop buttons are not depressed (activated). This operational interlock shall be achieved by a hard-wired relay system which shall be set up so that it can only be bypassed by means of key operated selector switch. Refer to paragraph 3.5.5, Hard-wired Safety System, for information on the machinery operation interlock system requirements.

Valve control shall be as follows ("buttons" refer to touch screen commands):

a. Both emptying valves shall be operated simultaneously by the "OPEN/CLOSED/STOP" buttons located in the OIs. Depressing the "OPEN" or "CLOSED" buttons in the OI shall activate outputs to start the hydraulic power units and open or close the valves as required.

b. Depressing the stop button shall reverse the process described above, bringing the machinery to a stop.

c. Manual stops and restarts shall be allowed at any intermediate valve position.

d. Disable. If the operator desires to operate selected equipment, he shall be able to disable the operation of any or all valves by depressing the respective "DISABLE" button. Each valve shall have its own "DISABLE" button, and a visual indicator shall be energized to indicate that the device is disabled. Depressing the "OPEN" or "CLOSED" button shall only operate that equipment which has not been disabled. To return the equipment to the normal mode, the operator shall depress the "DISABLE" button the second time. The visual indicator shall go out and the equipment returned to normal operation (i.e., push "ON" / push "OFF" button).

3.6.3.5.4 Miter Gates. Sequence interlocking for the lower miter gate shall provide that both of the filling valves and the upper miter gate must be closed. Operator shall be able to open or close the lower miter gate at the new lower OI control station located within the existing lower control shelter. The respective new remote OI panel located in each miter gate leaf machinery recess shall operate that particular miter gate leaf only. The drives controlling each miter gate leaf motor shall be accomplished by new variable frequency drives (VFDs), provided as part of this solicitation. The drives shall provide a ramp up/down speed, and position control via the PC outputs. Refer to paragraph 3.5.5, Hard-wired Safety System, for the machinery operation interlock system requirements.

Sequence interlocking for the upper miter gate shall provide that both of the emptying valves and the lower miter gate must be closed. Operator shall be able to open or close the upper miter gate at the new upper OI control station located within the existing upper control shelter. The respective new remote OI panel located in each miter gate leaf machinery recess shall operate that particular miter gate leaf only. The drives controlling

each miter gate leaf motor shall be accomplished by new variable frequency drives (VFDs), provided as part of this solicitation. The drives shall provide a ramp up/down speed, and position control via the PC outputs. Refer to paragraph 3.5.5, Hard-wired Safety System, for the machinery operation interlock system requirements.

Miter Gate control shall be as follows ("buttons" refer to touch screen commands):

a. Both miter gate leaves shall be operated simultaneously by the "OPEN/CLOSED/STOP" buttons located in the OIs. Depressing the "OPEN" or "CLOSED" buttons in the OI shall activate outputs to start the drive units and open or close the gate leaves as required.

b. Depressing the stop button shall reverse the process described above, bringing the machinery to a stop.

c. Manual stops and restarts shall be allowed at any intermediate gate position.

d. Disable. If the operator desires to operate selected equipment, he shall be able to disable the operation of any or all gates by depressing the respective "DISABLE" button. Each gate leaf shall have its own "DISABLE" button, and a visual indicator shall be energized to indicate that the device is disabled. Depressing the "OPEN" or "CLOSED" button shall only operate that equipment which has not been disabled. To return the equipment to the normal mode, the operator shall depress the "DISABLE" button the second time. The visual indicator shall go out and the equipment returned to normal operation (i.e., push "ON" / push "OFF" button).

e. Drive Control in the Opening Mode. An output shall be programmed to simultaneously start both gate leaves in the open direction. The drives will begin a programmable speed ramp.

NOTE: Programming for the ramp shall be an integral feature of the VFDs.

1) After a three-to-six second time delay (PC programmable), the drive shall be switched to full speed. Time delay to be field set and verified during start-up.
2) As the miter gate approaches its fully open position as monitored by the new position indicating encoder, provided as part of this solicitation, the PC shall command the drive to initiate a speed ramp down.
3) When the gate reaches its fully open position, the drive motor is de-energized and its brake is set.
4) The closing mode is the reverse of that described above.
The drive shall contain a master/follower card so that the gate leaves can be synchronized.

3.6.3.5.5 Tow Haulage Unit. The operator control for the towing motor shall be at either of the two OI control stations located within the existing control shelters and a remote OI control station located at the operator's overlook outside the lower (downstream) control station. The remote OI control station shall also have operating capabilities for control of the discharge siren and air horn and traffic control signals.

Tow Haulage control shall be as follows ("buttons" refer to touch screen commands):

Depressing the OI button labeled upstream or downstream "ON" shall choose direction of travel. This action starts the motor via a PC output in the low speed mode.

a. Faster or slower speeds shall manually be selected after starting by depressing the INCREASE or DECREASE buttons that "step" the drive through five speed set points.

b. The operation shall be stopped at any point by depressing the "STOP" button and then shall be restarted in either direction.

c. When end of normal travel is reached, as monitored by the tow haulage position indicator, the motor shall be automatically stopped and the "END-OF-TRAVEL" upstream or downstream visual indicator shall be energized. Within the PC logic, the operator can over-ride this by depressing and holding the upstream or downstream "ON" button. The "mule" shall then proceed past the normal stop position three feet and automatically stop. If the operator releases the "ON" button in this area of travel, the "mule" shall stop.

d. If the unit fails to stop prior to reaching the over-travel limit switch, then the automatic shutdown shall occur in the direction of travel while remaining operable in the reverse direction. For example, if the "mule" is traveling upstream and trips the over-travel limit switch, the operator shall then be capable of reversing (travel downstream) the "mule" without resetting the controls.

3.6.3.6 Peripheral Lock Equipment and General Operations. The lock features shall be generally as described below. These operations are furnished for information only, and are the responsibility of the Contractor to coordinate with the Lockmaster at Nickajack Lock for verification to facilitate proper network configuration and programming and subsequent monitoring and operation capabilities.

3.6.3.6.1 Traffic Control Signal Logic. The existing two traffic light fixtures (upstream and downstream) shall remain on "RED" under normal conditions. Red, amber, and green shall be operator controlled. The "flashing" of the traffic signal light(s) shall be programmed as per direction of the Lockmaster to ensure the proper signaling.

a. "RED":

1) When control system is first initiated the RED should FLASH at both ends.
2) When the RED signal is called for it will always FLASH.
3) Whenever miter gates are not fully open, unless manually over ridden by operator with "GREEN" or "AMBER/GREEN". Shall also be capable of manual operation.
4) Closing of the upstream or downstream miter gate shall automatically initiate the corresponding RED light.

b. "AMBER": Manual operation only. Auto-override to RED.

c. "AMBER/GREEN": Manual operation only when miter gates are moving.

d. "GREEN": Manual operation only when miter gates are fully open.

3.6.3.6.2 Discharge Siren and Air Horn. Appropriate PC outputs shall activate these existing devices when the OI touch screen button command is depressed. The device shall

be activated only as long as the operator depresses the button and shall quit when the button is released.

3.6.3.6.3 Trash Removal System. The existing trash removal system discharges air bubbles around critical clearances of the miter gates during operation to flush away floating debris. This system shall be required to operate during opening and closing of the miter gates. The operator controls shall be programmed as follows:

a. Depressing the "AUTO" button on the OI shall energize the output controlling an air supply solenoid only while the miter gate is operating.

b. Depressing the "HAND" button on the OI shall energize the output controlling an air supply solenoid continuously.

c. To remove the system from operation, depress the "AUTO" or "HAND" button on the OI, whichever is activated. For example, if the system is in the "AUTO" position, depressing the "AUTO" button shall deactivate the trash removal system completely. The same shall hold true for the "HAND" position. (Push ON/OFF buttons).

d. To reactivate the system, the operator shall depress the appropriate "HAND" or "AUTO" OI button.

e. Indicator lights energized from the OI inputs shall indicate which operation mode is in effect. Absence of indicator lights shall indicate that the system is OFF.

3.6.3.6.4 Water Level System. The Contractor shall furnish and program a new water level monitoring system, and furnish installation drawings, conductors, conduit, water level transmitters, and transient voltage surge protection as required for a complete system. The system shall continuously broadcast analog input signals of 4-20mA to provide monitoring of the tailwater, lock chamber water, and headwater levels to the lock control system for subsequent display at these OIs (upstream main control shelter, downstream main control shelter, and the operations building OIs).

OFFERING: (0011 – Water Level System)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.6.3.6.5 Small Craft Warning System. The Contractor shall furnish and program modifications to the existing small craft warning system and furnish installation drawings, conductors, conduit, horns, and buzzers for a complete system. The existing small craft warning switches (upstream and downstream signals) shall be rewired to the corresponding new PC inputs. Once inputs are energized, a new buzzer shall be activated at all OI stations. An output from the PC shall also be programmed to activate a new outdoor bell, located at the upstream control shelter, and new outdoor horns, located at each pull rope location. OI indicating lights shall flash until manually reset, but the buzzer shall be deactivated after an adjustable time delay, typically 15 seconds. The Contractor shall furnish installation drawings, conductors, and conduit as required for rewiring of these switches to the new control system.

3.6.3.6.6 Lube Oil Pumps. All equipment with existing lube oil pumps shall operate as follows:

a. The operator shall initiate the equipment start signal and the lube oil pump shall be started. The program shall then wait to receive indication from the oil pressure switch that proper oil pressure exists. After an adjustable time delay, typically 10 seconds, the main drive equipment shall be started. If proper oil pressure is not achieved within an adjustable time period, typically 45 seconds, an oil pressure alarm shall be initiated. The operator shall be able to override this alarm and run the machine by depressing the start switch a second time.

b. If oil pressure is lost during operation a low oil pressure alarm shall be initiated but the operation shall be allowed to be completed prior to equipment shutdown.

3.6.3.6.7 Weather Monitoring Station. The Contractor shall provide a new weather monitoring station consisting of sending and receiving units. A rack-mounted sending unit shall accumulate temperature, wind direction, and wind speed. The unit shall continuously broadcast this information to a receiving unit which shall in turn send the information to the lock control network for subsequent display at these OIs (upstream main control shelter, downstream main control shelter, and the operations building OIs).

a. The components for the sending unit shall be mounted within a NEMA 4X, stainless steel enclosure for rack mounting out-of-doors and properly sized to accommodate all the components and wiring terminations. Enclosure shall have a continuous-hinged door for access to components and wiring. Unit shall be rated for -10°F to +110°F temperature and exposure to direct sunlight, rain, ice, and snow. Mounting rack shall be engineered to withstand 120-MPH wind force.

b. The components for the receiving unit shall be mounted within a NEMA 12 enclosure for wall-mounting in-doors and properly sized to accommodate all the components and wiring terminations. Enclosure shall have a continuous-hinged door for access to components and wiring.

OFFERING: (0013 – Weather Monitoring Station)

MANUFACTURER'S NAME_____
BRAND_____
MODEL OR PART NO._____

3.6.4 Operator Interface System Equipment Configuration and Programming.

3.6.4.1 General. The Contractor shall provide such services as required to configure and program all equipment of the Operator Interface System.

3.6.4.2 Operator Graphic Screens. The Contractor shall program the following minimum operator interface graphic screens:

a. Lock Layout Screen (Plan View)
b. Menu Screen
c. Upstream Miter Gate Screen

d. Downstream Miter Gate Screen
e. Culvert Valve Screen(s) (Filling and Emptying)
f. Tow Haulage Screen
g. Traffic Signal Screen
i. Water Level Screen and/or water level data on other appropriate screens.
J. Operations and Maintenance Screen(s)

The Contractor shall program the User/Graphic Screens for each OI. The development of all user screens shall be coordinated with the Nickajack Lockmaster. The user screens shall contain the necessary features for proper machine/device control and status indication. The Contractor shall program Operations and Maintenance Screens to be utilized for machine diagnostics, troubleshooting, and aid in proper maintenance and repair.

3.6.5 Installation, Start-Up, and Commissioning Services.

3.6.5.1 General. The Contractor shall provide installation, start-up, and commissioning services for all Contractor-furnished materials and equipment such as to safely commission all equipment, networks, and systems required by this solicitation and these specifications and either stated herein, explicitly implied, and/or developed through the design and engineering phase of this contract. As a minimum, the following equipment, networks, and systems shall be included as part of the installation, start-up, and commissioning services as required to furnish a completely integrated, fully compatible, and interoperable control and monitoring system:

a. PC-based Lock Control Network
b. Operator Interface Network with Graphic Screens
c. Miter Gates, Culvert Valves, and Tow Haulage Controllers
d. Peripheral Lock Equipment
e. Minimum Hard-wired Safety System
f. Miter Gate Drive Systems
g. Specified Electrical Equipment

3.6.5.2 Installation, Start-Up, and Commissioning Personnel. The Contractor shall furnish experienced and qualified personnel to the job site during installation and start-up to provide technical assistance with wiring, hardware and equipment installation and setup, programming, troubleshooting, and commissioning of equipment, networks, and systems as required. Personnel shall be thoroughly familiar with the final engineering and design concepts utilized for this control rehab; Contactor and manufacturer installation drawings; existing lock drawings and equipment; and programming and setup features of furnished equipment, including ability to program, commission, and troubleshoot such equipment.

The Contractor shall submit the name(s) and qualifications of all proposed technicians, engineers, and/or system integrator(s) for Contactor Officer approval prior to commencing any field – site visits and support work. This data shall be furnished as part of the Contractor's proposal.

3.6.5.3 Installation, Start-up, and Commissioning Requirements. The installation, start-up, and commissioning process shall prepare the equipment, networks, and systems for Government operation. The installation, start-up, and commissioning process shall be complete when one of the following occur:

a. The lock machinery, including the peripheral lock equipment, and the minimum hard-wired safety system is commissioned to normal, productive service with all equipment, networks, and systems exercised through a complete and normal lockage. All alarms, indication lights/meters, over-travels, stops, starts, equipment cycles (full and intermediate), interlocks, etc have been tested and verified for proper operation. The start-up and commissioning shall be witnessed, verified, and accepted by the Nickajack Lock Lockmaster as being complete and ready for Government use.

b. The installation, start-up, and/or commissioning work are stopped at Government direction.

All basic, routine installation, start-up, and commissioning services shall be performed during a ten-hour period, during normal working hours (between 7:00 a.m. and 6:00 p.m. – local project time) Monday through Friday. The Contractor shall coordinate their on-site services/schedule with the Nickajack Lockmaster as part of the overall installation, startup, commissioning, and lock operation schedule. Schedule changes departing from these must be coordinated in advance with the Nickajack Lockmaster.

3.6.6 Training Services.

3.6.6.1 General. Training classes shall be held at the job site and/or at the Nashville Repair Station, located at Old Hickory Lock and Dam in Old Hickory, Tennessee, or some other mutually agreed location as scheduled by the Contracting Officer. As a minimum, the agenda(s) for training shall contain the following items for presentation and discussion:

a. Operator Interface control equipment.
b. Operator Interface network programming.
c. Control features using pushbuttons and OI equipment.
d. Variable Frequency Drive (VFD) equipment configuring.
e. Historical trending and data collection.
f. PC-based control network programming.
g. Troubleshooting and recommended maintenance procedures for PC-based controls and Input/Output equipment
h. Troubleshooting and recommended maintenance procedures for Operator Interface equipment.
i. Troubleshooting and recommended maintenance procedures for VFD drives.
j. Troubleshooting and recommended maintenance procedures for Field Bus networks and devices.

3.6.6.2 On-site Requirements. Included in the Contractor's services shall be one week, 40 hours, (Monday thru Friday), of on-site training for Government maintenance, operations, and design personnel. Instructors shall be professionals with a broad background in teaching methods as well as the subjects being taught.

The Contactor shall provide up-to-date teaching aids including audio visual aids, wiring diagrams, instruction manuals and typical equipment to give a balanced mixture of lectures, discussions, and demonstrations.

The Contractor shall submit the name(s) and qualifications of all proposed personnel for Contactor Officer approval prior to commencing any training. This data shall be furnished as part of the Contractor's proposal.

3.6.6.3 Facilities. The Government will provide a suitable on-site meeting/training room if held at a government facility at no cost to the Contractor. If held at a mutually agreed facility, it shall be the responsibility of the Contract to provide a suitable meeting/training room and cost shall be borne by the Contractor. Coordination for audio-visual aides and other training tools/equipment shall be the sole responsibility of the Contractor and all costs shall be borne by the Contractor.

3.6.7 Design Documents/Submittals.

3.6.7.1 General. The Contractor shall warrant to the Government that the Contractor shall produce design documents that are complete and free from error. The Contractor shall furnish six sets each of the design/installation drawings for review by Government personnel at each design submittal listed in the following schedule for conformance with the Request For Proposal (RFP). Such review by the Government

shall not be considered as approval and the Contractor shall presume "no comment" and proceed if comment is not provided within 14 working days (excluding Government Holidays) from receipt of the submittal.

Design Documents/Submittal Schedule:

a. Design Concepts and Proposed Technical Solutions. Design concepts and proposed technical solutions shall be submitted with Phase Two of the solicitation. These concepts and proposed solutions shall, as a minimum, define the technical approach required to furnish a complete rehabilitation of the existing lock control system as described within these specifications and solicitation. The concepts and proposed solutions shall be presented, as a minimum, with the following drawings: (1) PC-based Lock Control System block diagram/schematic, (2) Operator Interface schematic, including preliminary layout of bench boards/cabinets, (3) preliminary layout of miter gates, culvert valves, and tow haulage unit controllers, and (4) major equipment list with manufacturer's catalog data sheets/brochures. The required pages within these specifications shall be completed stating proposed equipment and other pertinent data requested.

b. 65% Design Submittal. A 65% design submittal shall be submitted within 60 calendar days after award of contract and receipt of notice-to-proceed. This submittal shall, as a minimum, progress the (1) design concepts and proposed technical solutions drawings (stated in paragraph 'a' above) to the 65% design phase. This design phase shall include (1) detail drawings, (2) hard-wired safety system, (3) miter gate drives, (4) peripheral lock equipment, (5) development of operator interface screens, (6) development of the program for the PC-based Lock Control System, and (7) specific installation drawings to maintain temporary service of the Lock during demolition, installation, commissioning, and startup, of all materials, equipment, systems, and networks.

c. 65% Design Submittal - Comment Review and Coordination Meeting. A 65% design submittal -comment review and coordination meeting will be held in the office of the Corps. This meeting shall be scheduled within two weeks after the Government has submitted its 65% design submittal review comments. The Government shall have three weeks for its review of the 65% design submittal. The meeting is to be coordinated by the Contractor and shall include coordination of meeting date, preparation of agenda, taking of meeting notes, and submittal of meeting notes to all attendees one week after meeting date.

d. 95% Design Submittal. A 95% design submittal shall be submitted within 60 calendar days after the 65% design submittal - comment review and coordination meeting (stated in paragraph 'c' above). This submittal shall, as a minimum, progress the (1) 65% drawings to the 95% design phase, and development of (2) a start-up and commissioning schedule, (3) a training agenda, (4) software programs for the PC-based Lock Control and Operator Interface Systems, and (5) Contractor's recommended critical spare parts list and associated cost estimate for each part listed. The 95% submittal shall be a complete submittal and shall require only minor changes. No meeting will be required at the 95% design phase. Discussion of the Government's 95% design phase review comments shall be coordinated by the Contractor and handled by means of a teleconference call(s). Subsequent notes developed as a result of the teleconference call(s) shall be included in the final submittal.

f. 100% Design Submittal. A 100% design submittal shall be submitted within 30 calendar days after receipt of the Government's 95% design submittal review comments.

3.6.7.2 Shop Drawings. Unless specifically instructed otherwise in respective sections of these specifications, the Contractor shall prepare and submit, six copies of Contractor-approved shop drawings for all materials and equipment furnished under this contract for record purposes. The term "shop drawings" includes drawings, diagram layouts, schematics, descriptive literature, illustrations, schedules,

performance test data, and similar materials furnished by the Contractor to explain detailed specific portions of the work required by the contract. These shall be complete and detailed. It shall be the responsibility of the Contractor to check and coordinate shop drawings of his subcontractors and suppliers prior to submitting them. With each submittal of shop drawings, the Contractor shall certify that he has reviewed the shop drawings in detail and that they are correct and in strict conformance with the contract drawings and specifications except as otherwise explicitly stated.

3.6.7.3 Format.

a. Drafting. The drafting of the work furnished shall be in the format of Bentley Systems Microstation Software (.dgn format)®. Final drawings shall be stand-alone drawings not having reference files attached. Design file nomenclature and drafting standards shall comply with drafting and computer standards used by the Nashville District, Corps of Engineers. All final drawings shall be signed and stamped.

The Corps shall furnish an electronic copy of all pertinent drawings including border files in Microstation® format as well as CADD standards including level criteria to be followed for this contract.

b. Engineering. One signed and checked copy of all engineering calculations shall be furnished with the 100% design submittal. Calculations shall be provided for review at the 95% and 100% design submittals. The 100% copy of the calculations shall be provided with suitable binder and title label.

c. Narrative. The written portion of the design submittals and meeting notes shall be developed on Microsoft Word 2000® or earlier. Computer diskettes of the work shall be furnished to the Nashville District, Corps of Engineers upon completion of the delivery.

3.7 Warranty.

3.7.1 General. The Contractor shall furnish to the Contracting Officer the manufacturer's standard warranty or guarantee for the equipment and materials installed under this contract. The Contractor shall also provide additional warranty, in accordance with paragraph 3.7.5, Extended Warranty, as described herein. The Contractor shall provide a warranty on all software design and programming for a period of one-year from commissioning of lock for Government use as described in paragraph 3.6.5.3, Start-up and Commissioning Requirements.

3.7.2 Failure to Meet Guarantees and Requirements of the Contract. Should the factory tests, field tests, or operation of the equipment, prior to acceptance by the Government, indicate that it does not meet the guarantees and requirements of the contract, the Contracting Officer may reject the equipment or may direct the Contractor to proceed at once to make alterations or furnish new equipment as deemed necessary to meet the guarantees or requirements. All expenses incurred for furnishing and delivering new equipment or making alterations of existing equipment, and of tests performed necessary by failure of the equipment to meet the guarantees and requirements shall be borne by the Contactor.

If, after due notice, the Contractor should refuse or persistently neglect to correct any defects, errors, omissions, or any other failure of the equipment to meet the guarantees and requirements of the contact, the Government may proceed at its own expense to correct such defects, errors, omissions, or failures, and if the Contractor, upon request, refuses to make payment of an amount equal to the actual expense so incurred by the Government, the Government will proceed to deduct the amount due from payment due the Contractor.

3.7.3 Right to Operate Unsatisfactory Equipment. The Government shall have the right to operate any and all equipment as soon as, and as long as, it is in operating condition whether or not such equipment has been accepted as complete and satisfactory, except that this shall not be construed to permit operation of

any equipment, which may be materially damaged by such operation before any required alterations or repairs have been made. All repairs or alterations required of the Contractor shall be made by the Contractor at such times as directed by the Contracting Officer and in such a manner as will cause the minimum interruption in the use of the equipment by the Government.

3.7.4 Final Examination, Operation, and Acceptance. When all work for the equipment specified under this contract has been completed and the equipment has successfully met the requirements of the factory tests, field tests, and operation, the Contracting Officer will make a thorough final examination and operation of the equipment and if it is found to comply with the requirements of the contract, it will be accepted and the Contractor so notified. The Contractor shall be present for the final examination, operation, and acceptance of the equipment.

3.7.5 Extended Warranty. In addition to standard manufacturer's warranties, the Contractor shall provide an additional warranty for all materials and equipment furnished under this contract, for a period of 24 months after delivery to the job site or 12 months after final examination, operation, and acceptance by the Government, as described in paragraph 3.7.4, Final Examination, Operation, and Acceptance, whichever comes first.

3.8 Payment. Payment for all materials, equipment, and services covered for this contract shall be made at the applicable contract price for the respective contract line items (CLINs) listed in SECTION B, Bid Schedule. Payment for each pay item shall be made only upon 100% delivery and acceptance thereof, of all materials, equipment, services, and submittals (as represented by SUBCLINs, if any) comprising the line item. No partial payments of line items will be allowed.

END OF SECTION

Section F - Deliveries or Performance

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0001	N/A	N/A	N/A	N/A
0002	N/A	N/A	N/A	N/A
0003	N/A	N/A	N/A	N/A

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	N/A	N/A	N/A	Government
0002	N/A	N/A	N/A	Government
0003	N/A	N/A	N/A	Government

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0001	N/A	N/A	N/A	N/A
0002	N/A	N/A	N/A	N/A
0003	N/A	N/A	N/A	N/A

Section G - Contract Administration Data

CONTRACT ADMINISTRATION DATA

96X31230000 082438 2540002P7J018080 NA 96403
COST CODE: 000000000000
AMOUNT: $

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52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER—CENTRAL CONTRACTOR REGISTRATION (OCT 2003)

(a) Method of payment. (1) All payments by the Government under this contract shall be made by electronic funds transfer (EFT), except as provided in paragraph (a)(2) of this clause. As used in this clause, the term “EFT” refers to the funds transfer and may also include the payment information transfer.

(2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either--

(i) Accept payment by check or some other mutually agreeable method of payment; or

(ii) Request the Government to extend the payment due date until such time as the Government can make payment by EFT (but see paragraph (d) of this clause).

(b) Contractor's EFT information. The Government shall make payment to the Contractor using the EFT information contained in the Central Contractor Registration (CCR) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the CCR database.

(c) Mechanisms for EFT payment. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Clearing House Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.

(d) Suspension of payment. If the Contractor's EFT information in the CCR database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the CCR database; and any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(e) Liability for uncompleted or erroneous transfers. (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for--

(i) Making a correct payment;

(ii) Paying any prompt payment penalty due; and

(iii) Recovering any erroneously directed funds.

(2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and--

(i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or

(ii) If the funds remain under the control of the payment office, the Government shall not make payment, and the provisions of paragraph (d) of this clause shall apply.

(f) EFT and prompt payment. A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.

(g) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall register separately in the CCR database and shall be paid by EFT in accordance with the terms of this clause. Notwithstanding any other requirement of this contract, payment to an ultimate recipient other than the Contractor, or a financial institution properly recognized under an assignment of claims pursuant to subpart 32.8, is not permitted. In all respects, the requirements of this clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.

(h) Liability for change of EFT information by financial agent. The Government is not liable for errors resulting from changes to EFT information made by the Contractor's financial agent.

(i) Payment information. The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Government makes payment by check in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address contained in the CCR database.

(End of Clause)

INVOICING

One copy of each invoice, with line items corresponding to the CLINs and SubCLINs in the Bid Schedule (See Section B), shall be submitted to each of the following:

1) U.S. Army Corps of Engineers, Nashville District
   CELRN-OP-L-N; ATTN Charlie Ho
   PO Box 1070
   Nashville, TN 37202-1070

2) U.S. Army Corps of Engineers, Nashville District
   CELRN-CT; ATTN J.W. Purcell
   PO Box 1070
   Nashville, TN 37202-1070

Section H - Special Contract Requirements

RELEASE OF INFORMATION & PPIMS

INCORPORATION AND RELEASE OF PROPOSAL INFORMATION IN CONTRACT

Upon award of the contract, line item prices become part of the contract, become public property and will be released if requested.

All other parts of the successful offeror's proposal are subject to the rules of the Freedom of Information Act.

PAST PERFORMANCE INFORMATION MANAGEMENT SYSTEM (PPIMS)

Reference FAR 42.15, Contractor Performance Information, and AFARS 42.15 Contractor Performance Evaluation.

Performance evaluations will be performed on all service and supply contracts including individual Individual delivery orders, having a value in excess of $100,000.00.

Performance elements to be evaluated are the contractor's ability to conform to contract requirements and specifications, adherence to contract schedules, forecasting and cost control, administrative aspects related to performance, cooperation with and commitment to customer satisfation.

Interm performance evaluations are prepared annually and for unsatisfactory performance. A final performance evaluation shall be prepared after contract completion.

Interm performance evaluations are prepared annually and for unsatisfactory performance. A final performance evaluation shall be prepared after contract completion.

The contractor has the right to appeal in writing any final unsatisfactory performance evaluation within 30 calendar days to the Commander of the Contracting Activity. A final evaluation is the one prepared after the contract is completed, all other evaluations are interim evaluaton.

An evaluation form will be provided when the contract is awarded.

Section I - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.202-1	Definitions	DEC 2001
52.202-1 Alt I	Definitions (Dec 2001) --Alternate I	MAY 2001
52.203-3	Gratuities	APR 1984
52.203-6 Alt I	Restrictions On Subcontractor Sales To The Government (Jul 1995) -- Alternate I	OCT 1995
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	JAN 1997
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	JUN 2003
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-7	Central Contractor Registration	OCT 2003
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	JUL 1995
52.212-4	Contract Terms and Conditions--Commercial Items	OCT 2003
52.219-4	Notice of Price Evaluation Preference for HUBZone Small Business Concerns	JAN 1999
52.219-6	Notice Of Total Small Business Set-Aside	JUN 2003
52.219-8	Utilization of Small Business Concerns	MAY 2004
52.219-14	Limitations On Subcontracting	DEC 1996
52.222-3	Convict Labor	JUN 2003
52.222-7	Withholding of Funds	FEB 1988
52.222-8	Payrolls and Basic Records	FEB 1988
52.222-12	Contract Termination-Debarment	FEB 1988
52.222-14	Disputes Concerning Labor Standards	FEB 1988
52.222-20	Walsh-Healey Public Contracts Act	DEC 1996
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	DEC 2001
52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, and Other Eligible Veterans	DEC 2001
52.222-38	Compliance with Veterans' Employment Reporting Requirements	DEC 2001
52.222-41	Service Contract Act Of 1965, As Amended	MAY 1989
52.222-42	Statement Of Equivalent Rates For Federal Hires	MAY 1989
52.222-44	Fair Labor Standards And Service Contract Act - Price Adjustment	FEB 2002
52.223-6	Drug-Free Workplace	MAY 2001
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	OCT 2003
52.233-1	Disputes	JUL 2002
52.233-3	Protest After Award	AUG 1996
52.236-2	Differing Site Conditions	APR 1984
52.236-3	Site Investigation and Conditions Affecting the Work	APR 1984
52.236-5	Material and Workmanship	APR 1984
52.236-6	Superintendence by the Contractor	APR 1984
52.236-7	Permits and Responsibilities	NOV 1991

52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	APR 1984
52.236-10	Operations and Storage Areas	APR 1984
52.236-12	Cleaning Up	APR 1984
52.242-13	Bankruptcy	JUL 1995
52.242-15	Stop-Work Order	AUG 1989
252.225-7012	Preference For Certain Domestic Commodities	MAY 2004
252.243-7002	Requests for Equitable Adjustment	MAR 1998

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52.204-1 APPROVAL OF CONTRACT (DEC 1989)

This contract is subject to the written approval of the Contracting Officer for Supply and Services, USACE, Nashville District, and shall not be binding until so approved.

(End of clause)

52.212-5 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS--COMMERCIAL ITEMS (MAY 2004)

(a) The Contractor shall comply with the following Federal **Acquisition Regulation** (FAR) clause, which is incorporated in this contract by reference, to implement provisions of law or Executive orders applicable to acquisitions of commercial items: 52.233-3, Protest after Award (AUG 1996) (31 U.S.C. 3553).

(b) The Contractor shall comply with the FAR clauses in this paragraph (b) that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items: (Contracting Officer check as appropriate.)

_X__ (1) 52.203-6, Restrictions on Subcontractor Sales to the Government (JUL 1995), with Alternate I (OCT 1995) (41 U.S.C. 253g and 10 U.S.C. 2402).

___ (2) 52.219-3, Notice of HUBZone Small Business Set-Aside (Jan 1999) (U.S.C. 657a).

___ (3) 52.219-4, Notice of Price Evaluation Preference for HUBZone Small Business Concerns (Jan 1999) (if the offeror elects to waive the preference, it shall so indicate in its offer) (U.S.C. 657a).

___(4) (i) 52.219-5, Very Small Business Set-Aside (JUNE 2003) (Pub. L. 103-403, section 304, Small Business Reauthorization and Amendments Act of 1994).

____(ii) Alternate I (MAR 1999) to 52.219-5.

____(iii) Alternate II to (JUNE 2003) 52.219-5.

__X_ (5)(i) 52.219-6, Notice of Total Small Business Set-Aside (JUNE 2003) (15 U.S.C. 644).

___ (ii) Alternate I (OCT 1995) of 52.219-6.

___ (iii) Alternate II (MAR 2004) of 52.219-6.

___ (6)(i) 52.219-7, Notice of Partial Small Business Set-Aside (JUNE 2003) (15 U.S.C. 644).

___ (ii) Alternate I (OCT 1995) of 52.219-7.

___ (iii) Alternate II (MAR 2004) of 52.219-7.

__X_ (7) 52.219-8, Utilization of Small Business Concerns (MAY 2004) (15 U.S.C. 637 (d)(2) and (3)).

___ (8)(i) 52.219-9, Small Business Subcontracting Plan (JAN 2002) (15 U.S.C. 637(d)(4)).

___ (ii) Alternate I (OCT 2001) of 52.219-9

___(iii) Alternate II (OCT 2001) of 52.219-9.

__X_ (9) 52.219-14, Limitations on Subcontracting (DEC 1996) (15 U.S.C. 637(a)(14)).

___ (10)(i) 52.219-23, Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns (JUNE 2003) (Pub. L. 103-355, section 7102, and 10 U.S.C. 2323) (if the offeror elects to waive the adjustment, it shall so indicate in its offer).

___ (ii) Alternate I (JUNE 2003) of 52.219-23.

___ (11) 52.219-25, Small Disadvantaged Business Participation Program--Disadvantaged Status and Reporting (OCT 1999) (Pub. L. 103-355, section 7102, and 10 U.S.C. 2323).

___ (12) 52.219-26, Small Disadvantaged Business Participation Program--Incentive Subcontracting (OCT 2000) (Pub. L. 103-355, section 7102, and 10 U.S.C. 2323).

___ (13) 52.219-27, Notice of Total Service-Disabled Veteran-Owned Small Business Set-Aside (May 2004).

___ (14) 52.222-3, Convict Labor (JUNE 2003) (E.O. 11755).

___ (15) 52.222-19, Child Labor--Cooperation with Authorities and Remedies (JAN 2004) (E.O. 13126).

__X_ (16) 52.222-21, Prohibition of Segregated Facilities (FEB 1999).

___ (17) 52.222-26, Equal Opportunity (APR 2002) (E.O. 11246).

___ (18) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212).

___ (19) 52.222-36, Affirmative Action for Workers with Disabilities (JUN 1998) (29 U.S.C. 793).

__X_ (20) 52.222-37, Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212).

___ (21)(i) 52.223-9, Estimate of Percentage of Recovered Material Content for EPA-Designated Products (AUG 2000) (42 U.S.C. 6962(c)(3)(A)(ii)).

___ (ii) Alternate I (AUG 2000) of 52.223-9 (42 U.S.C. 6962(i)(2)(C)).

___ (22) 52.225-1, Buy American Act--Supplies (JUNE 2003) (41 U.S.C. 10a-10d).

___ (23)(i) 52.225-3, Buy American Act--Free Trade Agreements--Israeli Trade Act (JAN 2004) (41 U.S.C. 10a-10d, 19 U.S.C. 3301 note, 19 U.S.C. 2112 note, Pub. L. 108-77, 108-78).

___ (ii) Alternate I (JAN 2004) of 52.225-3.

___ (iii) Alternate II (JAN 2004) of 52.225-3.

___ (24) 52.225-5, Trade Agreements (JAN 2004) (19 U.S.C. 2501, et seq., 19 U.S.C. 3301 note).

___ (25) 52.225-13, Restrictions on Certain Foreign Purchases (OCT 2003) (E.o.s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of Treasury).

___ (26) 52.225-15, Sanctioned European Union Country End Products (FEB 2000) (E.O. 12849).

___ (27) 52.225-16, Sanctioned European Union Country Services (FEB 2000) (E.O. 12849).

___ (28) 52.232-29, Terms for Financing of Purchases of Commercial Items (FEB 2002) (41 U.S.C. 255(f), 10 U.S.C. 2307(f)).

____ (29) 52.232-30, Installment Payments for Commercial Items (OCT 1995) (41 U.S.C. 255(f), 10 U.S.C. 2307(f)).

__X__ (30) 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration (OCT 2003) (31 U.S.C. 3332).

____ (31) 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration (MAY 1999) (31 U.S.C. 3332).

____ (32) 52.232-36, Payment by Third Party (MAY 1999) (31 U.S.C. 3332).

____ (33) 52.239-1, Privacy or Security Safeguards (AUG 1996) (5 U.S.C. 552a).

____ (34)(i) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (APR 2003) (46 U.S.C. Appx 1241 and 10 U.S.C. 2631).

____ (ii) Alternate I (APR 1984) of 52.247-64.

(c) The Contractor shall comply with the FAR clauses in this paragraph (c), applicable to commercial services, that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items: [Contracting Officer check as appropriate.]

____ (1) 52.222-41, Service Contract Act of 1965, as Amended (MAY 1989) (41 U.S.C. 351, et seq.).

____ (2) 52.222-42, Statement of Equivalent Rates for Federal Hires (MAY 1989) (29 U.S.C. 206 and 41 U.S.C. 351, et seq.).

____ (3) 52.222-43, Fair Labor Standards Act and Service Contract Act--Price Adjustment (Multiple Year and Option Contracts) (MAY 1989) (29 U.S.C. 206 and 41 U.S.C. 351, et seq.).

____ (4) 52.222-44, Fair Labor Standards Act and Service Contract Act--Price Adjustment (February 2002) (29 U.S.C. 206 and 41 U.S.C. 351, et seq.).

____ (5) 52.222-47, SCA Minimum Wages and Fringe Benefits Applicable to Successor Contract Pursuant to Predecessor Contractor Collective Bargaining Agreements (CBA) (May 1989) (41 U.S.C. 351, et seq.).

(d) Comptroller General Examination of Record. The Contractor shall comply with the provisions of this paragraph (d) if this contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, and does not contain the clause at 52.215-2, Audit and Records--Negotiation.

(1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to and right to examine any of the Contractor's directly pertinent records involving transactions related to this contract.

(2) The Contractor shall make available at its offices at all reasonable times the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR Subpart 4.7, Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.

(3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of form. This does not require the Contractor to create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e) (1) Notwithstanding the requirements of the clauses in paragraphs (a), (b), (c), and (d) of this clause, the Contractor is not required to flow down any FAR clause, other than those in paragraphs (i) through (vi) of this paragraph in a subcontract for commercial items. Unless otherwise indicated below, the extent of the flow down shall be as required by the clause--

(i) 52.219-8, Utilization of Small Business Concerns (May 2004) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds $500,000 ($1,000,000 for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(ii) 52.222-26, Equal Opportunity (April 2002) (E.O. 11246).

(iii) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (December 2001) (38 U.S.C. 4212).

(iv) 52.222-36, Affirmative Action for Workers with Disabilities (June 1998) (29 U.S.C. 793).

(v) 52.222-41, Service Contract Act of 1965, as Amended (May 1989), flow down required for all subcontracts subject to the Service Contract Act of 1965 (41 U.S.C. 351, et seq.).

(vi) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (April 2003) (46 U.S.C. Appx 1241 and 10 U.S.C. 2631). Flow down required in accordance with paragraph (d) of FAR clause 52.247-64.

(2) While not required, the contractor May include in its subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(End of clause)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

http://farsite.hill.af.mil
http://www.acqnet.gov/far/current/html/FARMTOC.html

(End of clause)

252.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000)

(a) The Government will provide to the Contractor, without charge, one set of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall--

(1) Check all drawings furnished immediately upon receipt;

(2) Compare all drawings and verify the figures before laying out the work;

(3) Promptly notify the Contracting Officer of any discrepancies;

(4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and

(5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

(1) Large-scale drawings shall govern small-scale drawings; and

(2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings:

Title	File	Drawing No.
TBD	Web/Paper	TBD

The drawings in hard-copy will be made available during the site visit on 1 Jul 04. The electronic version is intended to be made available via the web (http://www.lrn.usace.army.mil/ebs/AdvertisedSolicitations.asp) by means of an amendment to this solicitation on a date to be determined.

(End of clause)

Section J - List of Documents, Exhibits and Other Attachments

WAGE DETERMINATION

WAGE DETERMINATION NO: 94-2497 REV (22) AREA: TN, NASHVILLE

WAGE DETERMINATION NO: **94-2497 REV** (22) AREA: TN,NASHVILLE
REGISTER OF WAGE DETERMINATIONS UNDER U.S. DEPARTMENT OF LABOR
FOR OFFICIAL USE ONLY BY FEDERAL AGENCIES PARTICIPATING IN MOU WITH DOL
WASHINGTON D.C. 20210
Wage Determination No.: 1994-2497
William W. Gross Revision No.: 22
Director Wage Determinations Date Of Last Revision: 09/23/2003

States: Kentucky, Tennessee
Area: Kentucky Counties of Adair, Allen, Barren, Clinton, Cumberland, Metcalfe, Monroe, Russell, Simpson
Tennessee Counties of Bedford, Cannon, Cheatham, Clay, Davidson, De Kalb, Dickson, Hickman, Houston, Humphreys, Jackson, Lewis, Macon, Marshall, Maury, Perry, Putnam, Robertson, Rutherford, Smith, Sumner, Trousdale, Warren, White, Williamson, Wilson

Fringe Benefits Required Follow the Occupational Listing

OCCUPATION CODE - TITLE	MINIMUM WAGE RATE
01000 - Administrative Support and Clerical Occupations	
01011 - Accounting Clerk I	9.12
01012 - Accounting Clerk II	11.45
01013 - Accounting Clerk III	13.50
01014 - Accounting Clerk IV	15.70
01030 - Court Reporter	13.02
01050 - Dispatcher, Motor Vehicle	14.23
01060 - Document Preparation Clerk	9.94
01070 - Messenger (Courier)	9.60
01090 - Duplicating Machine Operator	9.94
01110 - Film/Tape Librarian	9.50
01115 - General Clerk I	8.04
01116 - General Clerk II	9.17
01117 - General Clerk III	10.33
01118 - General Clerk IV	11.62
01120 - Housing Referral Assistant	15.77
01131 - Key Entry Operator I	8.57
01132 - Key Entry Operator II	11.01
01191 - Order Clerk I	9.82
01192 - Order Clerk II	12.29
01261 - Personnel Assistant (Employment) I	9.98
01262 - Personnel Assistant (Employment) II	11.01
01263 - Personnel Assistant (Employment) III	14.67
01264 - Personnel Assistant (Employment) IV	15.33
01270 - Production Control Clerk	15.67
01290 - Rental Clerk	9.58
01300 - Scheduler, Maintenance	12.06
01311 - Secretary I	12.06
01312 - Secretary II	14.77
01313 - Secretary III	15.77
01314 - Secretary IV	18.45

01315 - Secretary V 20.39
01320 - Service Order Dispatcher 11.71
01341 - Stenographer I 9.47
01342 - Stenographer II 10.63
01400 - Supply Technician 18.45
01420 - Survey Worker (Interviewer) 11.64
01460 - Switchboard Operator-Receptionist 11.01
01510 - Test Examiner 14.77
01520 - Test Proctor 14.77
01531 - Travel Clerk I 9.55
01532 - Travel Clerk II 10.12
01533 - Travel Clerk III 10.79
01611 - Word Processor I 10.74
01612 - Word Processor II 15.95
01613 - Word Processor III 16.29
03000 - Automatic Data Processing Occupations
03010 - Computer Data Librarian 11.25
03041 - Computer Operator I 12.33
03042 - Computer Operator II 13.82
03043 - Computer Operator III 15.09
03044 - Computer Operator IV 16.84
03045 - Computer Operator V 18.67
03071 - Computer Programmer I (1) 14.54
03072 - Computer Programmer II (1) 18.00
03073 - Computer Programmer III (1) 23.00
03074 - Computer Programmer IV (1) 27.62
03101 - Computer Systems Analyst I (1) 24.64
03102 - Computer Systems Analyst II (1) 27.62
03103 - Computer Systems Analyst III (1) 27.62
03160 - Peripheral Equipment Operator 30.38
05000 - Automotive Service Occupations
05005 - Automotive Body Repairer, Fiberglass 17.62
05010 - Automotive Glass Installer 15.67
05040 - Automotive Worker 15.67
05070 - Electrician, Automotive 15.89
05100 - Mobile Equipment Servicer 14.21
05130 - Motor Equipment Metal Mechanic 16.29
05160 - Motor Equipment Metal Worker 16.67
05190 - Motor Vehicle Mechanic 16.29
05220 - Motor Vehicle Mechanic Helper 13.22
05250 - Motor Vehicle Upholstery Worker 14.82
05280 - Motor Vehicle Wrecker 15.67
05310 - Painter, Automotive 15.89
05340 - Radiator Repair Specialist 15.67
05370 - Tire Repairer 10.89
05400 - Transmission Repair Specialist 16.29
07000 - Food Preparation and Service Occupations
(not set) - Food Service Worker 8.64
07010 - Baker 11.27
07041 - Cook I 8.32
07042 - Cook II 9.31
07070 - Dishwasher 7.80
07130 - Meat Cutter 11.70
07250 - Waiter/Waitress 6.89
09000 - Furniture Maintenance and Repair Occupations

09010 - Electrostatic Spray Painter 14.42
09040 - Furniture Handler 11.07
09070 - Furniture Refinisher 15.92
09100 - Furniture Refinisher Helper 12.72
09110 - Furniture Repairer, Minor 14.21
09130 - Upholsterer 14.42
11030 - General Services and Support Occupations
11030 - Cleaner, Vehicles 8.64
11060 - Elevator Operator 8.42
11090 - Gardener 11.08
11121 - House Keeping Aid I 7.58
11122 - House Keeping Aid II 8.42
11150 - Janitor 8.55
11210 - Laborer, Grounds Maintenance 9.17
11240 - Maid or Houseman 7.58
11270 - Pest Controller 12.27
11300 - Refuse Collector 8.64
11330 - Tractor Operator 10.41
11360 - Window Cleaner 9.48
12000 - Health Occupations
12020 - Dental Assistant 12.32
12040 - Emergency Medical Technician (EMT)/Paramedic/Ambulance Driver 13.27
12071 - Licensed Practical Nurse I 12.12
12072 - Licensed Practical Nurse II 13.60
12073 - Licensed Practical Nurse III 15.21
12100 - Medical Assistant 12.57
12130 - Medical Laboratory Technician 13.40
12160 - Medical Record Clerk 11.88
12190 - Medical Record Technician 14.89
12221 - Nursing Assistant I 9.00
12222 - Nursing Assistant II 10.11
12223 - Nursing Assistant III 11.04
12224 - Nursing Assistant IV 12.38
12250 - Pharmacy Technician 12.19
12280 - Phlebotomist 12.61
12311 - Registered Nurse I 17.66
12312 - Registered Nurse II 21.60
12313 - Registered Nurse II, Specialist 21.60
12314 - Registered Nurse III 26.14
12315 - Registered Nurse III, Anesthetist 26.14
12316 - Registered Nurse IV 31.31
13000 - Information and Arts Occupations
13002 - Audiovisual Librarian 17.59
13011 - Exhibits Specialist I 15.80
13012 - Exhibits Specialist II 19.57
13013 - Exhibits Specialist III 23.87
13041 - Illustrator I 17.70
13042 - Illustrator II 21.93
13043 - Illustrator III 26.76
13047 - Librarian 20.98
13050 - Library Technician 11.64
13071 - Photographer I 14.03
13072 - Photographer II 16.42
13073 - Photographer III 20.34
13074 - Photographer IV 24.82

13075 - Photographer V 30.11
15000 - Laundry, Dry Cleaning, Pressing and Related Occupations
15010 - Assembler 6.90
15030 - Counter Attendant 6.90
15040 - Dry Cleaner 8.31
15070 - Finisher, Flatwork, Machine 6.90
15090 - Presser, Hand 6.90
15100 - Presser, Machine, Drycleaning 7.59
15130 - Presser, Machine, Shirts 6.90
15160 - Presser, Machine, Wearing Apparel, Laundry 6.90
15190 - Sewing Machine Operator 9.06
15220 - Tailor 9.93
15250 - Washer, Machine 7.42
19000 - Machine Tool Operation and Repair Occupations
19010 - Machine-Tool Operator (Toolroom) 16.26
19040 - Tool and Die Maker 17.21
21000 - Material Handling and Packing Occupations
21010 - Fuel Distribution System Operator 14.64
21020 - Material Coordinator 14.74
21030 - Material Expediter 14.74
21040 - Material Handling Laborer 12.25
21050 - Order Filler 10.65
21071 - Forklift Operator 13.20
21080 - Production Line Worker (Food Processing) 13.20
21100 - Shipping/Receiving Clerk 12.23
21130 - Shipping Packer 12.23
21140 - Store Worker I 9.27
21150 - Stock Clerk (Shelf Stocker; Store Worker II) 12.70
21210 - Tools and Parts Attendant 13.20
21400 - Warehouse Specialist 13.20
23000 - Mechanics and Maintenance and Repair Occupations
23010 - Aircraft Mechanic 16.52
23040 - Aircraft Mechanic Helper 13.72
23050 - Aircraft Quality Control Inspector 18.76
23060 - Aircraft Servicer 15.44
23070 - Aircraft Worker 16.29
23100 - Appliance Mechanic 16.59
23120 - Bicycle Repairer 11.75
23125 - Cable Splicer 17.99
23130 - Carpenter, Maintenance 14.42
23140 - Carpet Layer 15.19
23160 - Electrician, Maintenance 17.77
23181 - Electronics Technician, Maintenance I 16.79
23182 - Electronics Technician, Maintenance II 17.60
23183 - Electronics Technician, Maintenance III 18.35
23260 - Fabric Worker 14.41
23290 - Fire Alarm System Mechanic 16.73
23310 - Fire Extinguisher Repairer 13.61
23340 - Fuel Distribution System Mechanic 18.07
23370 - General Maintenance Worker 15.40
23400 - Heating, Refrigeration and Air Conditioning Mechanic 17.08
23430 - Heavy Equipment Mechanic 15.09
23440 - Heavy Equipment Operator 15.02
23460 - Instrument Mechanic 16.73
23470 - Laborer 8.64

23500 - Locksmith 15.97
23530 - Machinery Maintenance Mechanic 17.06
23550 - Machinist, Maintenance 16.78
23580 - Maintenance Trades Helper 12.30
23640 - Millwright 20.90
23700 - Office Appliance Repairer 15.97
23740 - Painter, Aircraft 18.34
23760 - Painter, Maintenance 14.42
23790 - Pipefitter, Maintenance 18.02
23800 - Plumber, Maintenance 17.60
23820 - Pneudraulic Systems Mechanic 16.73
23850 - Rigger 16.73
23870 - Scale Mechanic 15.19
23890 - Sheet-Metal Worker, Maintenance 15.96
23910 - Small Engine Mechanic 13.66
23930 - Telecommunication Mechanic I 18.08
23931 - Telecommunication Mechanic II 18.98
23950 - Telephone Lineman 18.08
23960 - Welder, Combination, Maintenance 15.02
23965 - Well Driller 15.24
23970 - Woodcraft Worker 18.11
23980 - Woodworker 12.96
24000 - Personal Needs Occupations
24570 - Child Care Attendant 7.39
24580 - Child Care Center Clerk 10.60
24600 - Chore Aid 7.77
24630 - Homemaker 11.78
25000 - Plant and System Operation Occupations
25010 - Boiler Tender 17.21
25040 - Sewage Plant Operator 15.86
25070 - Stationary Engineer 17.21
25190 - Ventilation Equipment Tender 13.16
25210 - Water Treatment Plant Operator 15.32
27000 - Protective Service Occupations
(not set) - Police Officer 15.68
27004 - Alarm Monitor 9.70
27006 - Corrections Officer 15.51
27010 - Court Security Officer 15.51
27040 - Detention Officer 15.51
27070 - Firefighter 15.50
27101 - Guard I 8.64
27102 - Guard II 9.70
28000 - Stevedoring/Longshoremen Occupations
28010 - Blocker and Bracer 15.19
28020 - Hatch Tender 15.19
28030 - Line Handler 15.19
28040 - Stevedore I 12.57
28050 - Stevedore II 15.33
29000 - Technical Occupations
21150 - Graphic Artist 17.70
29010 - Air Traffic Control Specialist, Center (2) 29.10
29011 - Air Traffic Control Specialist, Station (2) 20.07
29012 - Air Traffic Control Specialist, Terminal (2) 22.09
29023 - Archeological Technician I 15.08
29024 - Archeological Technician II 16.88

29025 - Archeological Technician III 20.89
29030 - Cartographic Technician 20.89
29035 - Computer Based Training (CBT) Specialist/ Instructor 22.95
29040 - Civil Engineering Technician 17.69
29061 - Drafter I 10.49
29062 - Drafter II 14.41
29063 - Drafter III 18.40
29064 - Drafter IV 20.89
29081 - Engineering Technician I 14.91
29082 - Engineering Technician II 16.63
29083 - Engineering Technician III 21.00
29084 - Engineering Technician IV 24.64
29085 - Engineering Technician V 30.21
29086 - Engineering Technician VI 36.54
29090 - Environmental Technician 17.68
29100 - Flight Simulator/Instructor (Pilot) 27.62
29160 - Instructor 19.82
29210 - Laboratory Technician 15.15
29240 - Mathematical Technician 20.98
29361 - Paralegal/Legal Assistant I 14.61
29362 - Paralegal/Legal Assistant II 18.24
29363 - Paralegal/Legal Assistant III 22.25
29364 - Paralegal/Legal Assistant IV 26.68
29390 - Photooptics Technician 22.40
29480 - Technical Writer 23.51
29491 - Unexploded Ordnance (UXO) Technician I 18.49
29492 - Unexploded Ordnance (UXO) Technician II 22.37
29493 - Unexploded Ordnance (UXO) Technician III 26.81
29494 - Unexploded (UXO) Safety Escort 18.49
29495 - Unexploded (UXO) Sweep Personnel 18.49
29620 - Weather Observer, Senior (3) 16.85
29621 - Weather Observer, Combined Upper Air and Surface Programs (3) 15.10
29622 - Weather Observer, Upper Air (3) 15.10
31000 - Transportation/ Mobile Equipment Operation Occupations
31030 - Bus Driver 14.16
31260 - Parking and Lot Attendant 16.13
31290 - Shuttle Bus Driver 10.02
31300 - Taxi Driver 8.36
31361 - Truckdriver, Light Truck 10.02
31362 - Truckdriver, Medium Truck 16.29
31363 - Truckdriver, Heavy Truck 17.57
31364 - Truckdriver, Tractor-Trailer 17.57
99000 - Miscellaneous Occupations
99020 - Animal Caretaker 8.52
99030 - Cashier 8.10
99041 - Carnival Equipment Operator 9.84
99042 - Carnival Equipment Repairer 10.41
99043 - Carnival Worker 7.77
99050 - Desk Clerk 8.47
99095 - Embalmer 17.88
99300 - Lifeguard 8.32
99310 - Mortician 17.88
99350 - Park Attendant (Aide) 10.45
99400 - Photofinishing Worker (Photo Lab Tech., Darkroom Tech) 8.32
99500 - Recreation Specialist 9.29

99510 - Recycling Worker	10.88
99610 - Sales Clerk	8.32
99620 - School Crossing Guard (Crosswalk Attendant)	8.64
99630 - Sport Official	7.23
99658 - Survey Party Chief (Chief of Party)	11.65
99659 - Surveying Technician (Instr. Person/Surveyor Asst./Instr.)	10.45
99660 - Surveying Aide	10.45
99690 - Swimming Pool Operator	12.97
99720 - Vending Machine Attendant	10.88
99730 - Vending Machine Repairer	12.97
99740 - Vending Machine Repairer Helper	10.88

ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:

HEALTH & WELFARE: $2.36 an hour or $94.40 a week or $409.07 a month

VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 10 years, and 4 after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HOLIDAYS: A minimum of ten paid holidays per year: New Year's Day, Martin Luther King Jr.'s Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4.174)

THE OCCUPATIONS WHICH HAVE PARENTHESES AFTER THEM RECEIVE THE FOLLOWING BENEFITS (as numbered):

1) Does not apply to employees employed in a bona fide executive, administrative, or professional capacity as defined and delineated in 29 CFR 541. (See CFR 4.156)

2) APPLICABLE TO AIR TRAFFIC CONTROLLERS ONLY - NIGHT DIFFERENTIAL: An employee is entitled to pay for all work performed between the hours of 6:00 P.M. and 6:00 A.M. at the rate of basic pay plus a night pay differential amounting to 10 percent of the rate of basic pay.

3) WEATHER OBSERVERS - NIGHT PAY & SUNDAY PAY: If you work at night as part of a regular tour of duty, you will earn a night differential and receive an additional 10% of basic pay for any hours worked between 6pm and 6am. If you are a full-time employed (40 hours a week) and Sunday is part of your regularly scheduled workweek, you are paid at your rate of basic pay plus a Sunday premium of 25% of your basic rate for each hour of Sunday work which is not overtime (i.e. occasional work on Sunday outside the normal tour of duty is considered overtime work).

HAZARDOUS PAY DIFFERENTIAL: An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordinance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordnance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives. Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving regrading and cleaning of artillery ranges. A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close proximity to ordnance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and hauling of ordnance, explosive, and incendiary ordnance material other than small arms ammunition. These differentials are only applicable to work that has been specifically designated by the agency for ordnance, explosives, and incendiary material differential pay.

** UNIFORM ALLOWANCE **

If employees are required to wear uniforms in the performance of this contract (either by the terms of the Government contract, by the employer, by the state or local law, etc.), the cost of furnishing such uniforms and maintaining (by laundering or dry cleaning) such uniforms is an expense that may not be borne by an employee where such cost reduces the hourly rate below that required by the wage determination. The Department of Labor will accept payment in accordance with the following standards as compliance: The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of $3.35 per week (or $.67 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

** NOTES APPLYING TO THIS WAGE DETERMINATION **

Source of Occupational Title and Descriptions: The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations," Fourth Edition, January 1993, as amended by the Third Supplement, dated March 1997, unless otherwise indicated. This publication may be obtained from the Superintendent of Documents, at 202-783-3238, or by writing to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Copies of specific job descriptions may also be obtained from the appropriate contracting officer.

REQUEST FOR AUTHORIZATION OF ADDITIONAL CLASSIFICATION AND WAGE RATE {Standard Form 1444 (SF 1444)} Conformance Process: The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed classes of employees shall be paid the monetary wages and furnished the fringe benefits as are determined. Such conforming process shall be initiated by the contractor prior to the performance of contract work by such unlisted class(es) of employees. The conformed classification, wage rate, and/or fringe benefits shall be retroactive to the commencement date of the contract. {See Section 4.6 (C)(vi)} When multiple wage determinations are included in a contract, a separate SF 1444 should be prepared for each wage determination to which a class(es) is to be conformed. The process for preparing a conformance request is as follows: 1) When preparing the bid, the contractor identifies the need for a conformed occupation) and computes a proposed rate). 2) After contract award, the contractor prepares a written report listing in order proposed classification title), a Federal grade equivalency (FGE) for each proposed classification), job description), and rationale for proposed wage rate), including information regarding the agreement or disagreement of the authorized representative of the employees involved, or where there is no authorized representative, the employees themselves. This report should be submitted to the contracting officer no later than 30 days after such unlisted class(es) of employees performs any contract work. 3) The contracting officer reviews the proposed action and promptly submits a report of the action, together with the agency's recommendations and pertinent information including the position of the contractor and the employees, to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, for review. (See section 4.6(b)(2) of Regulations 29 CFR Part 4). 4) Within 30 days of receipt, the Wage and Hour Division approves, modifies, or disapproves the action via transmittal to the agency contracting officer, or notifies the contracting officer that additional time will be required to process the request. 5) The contracting officer transmits the Wage and Hour decision to the contractor. 6) The contractor informs the affected employees. Information required by the Regulations must be submitted on SF 1444 or bond paper. When preparing a conformance request, the "Service Contract Act Directory of Occupations" (the Directory) should be used to compare job definitions to insure that duties requested are not performed by a

classification already listed in the wage determination. Remember, it is not the job title, but the required tasks that determine whether a class is included in an established wage determination. Conformances may not be used to artificially split, combine, or subdivide classifications listed in the wage determination.

Section K - Representations, Certifications, and Other Statements of Offerors

CLAUSES INCORPORATED BY FULL TEXT

52.209-5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (DEC 2001)

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that-

(i) The Offeror and/or any of its Principals-

(A) Are ( ) are not ( ) presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have ( ) have not ( ), within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are ( ) are not ( ) presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in paragraph (a)(1)(i)(B) of this provision.

(ii) The Offeror has ( ) has not ( ), within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

This Certification Concerns a Matter Within the Jurisdiction of an Agency of the United States and the Making of a False, Fictitious, or Fraudulent Certification May Render the Maker Subject to Prosecution Under Section 1001, Title 18, United States Code.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

52.212-3 OFFEROR REPRESENTATIONS AND CERTIFICATIONS--COMMERCIAL ITEMS (JAN 2004) ALTERNATE I (APR 2002)

(a) Definitions. As used in this provision:

"Emerging small business" means a small business concern whose size is no greater than 50 percent of the numerical size standard for the NAICS code designated.

"Forced or indentured child labor" means all work or service-

(1) Exacted from any person under the age of 18 under the menace of any penalty for its nonperformance and for which the worker does not offer himself voluntarily; or

(2) Performed by any person under the age of 18 pursuant to a contract the enforcement of which can be accomplished by process or penalties.

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern" means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and size standards in this solicitation.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern" means a small business concern--

(1) That is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of its stock is owned by one or more women; or

(2) Whose management and daily business operations are controlled by one or more women.

"Women-owned business concern" means a concern which is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and whose management and daily business operations are controlled by one or more women.

(b) Taxpayer Identification Number (TIN) (26 U.S.C. 6109, 31 U.S.C. 7701). (Not applicable if the offeror is required to provide this information to a central contractor registration database to be eligible for award.)

(1) All offerors must submit the information required in paragraphs (b)(3) through (b)(5) of this provision to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M, and implementing regulations issued by the Internal Revenue Service (IRS).

(2) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C. 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(3) Taxpayer Identification Number (TIN).

___ TIN:----------

___ TIN has been applied for.

___ TIN is not required because:

___ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

Offeror is an agency or instrumentality of a foreign government;

___ Offeror is an agency or instrumentality of the Federal Government.

(4) Type of organization.

___ Sole proprietorship;

___ Partnership;

___ Corporate entity (not tax-exempt);

___ Corporate entity (tax-exempt);

___ Government entity (Federal, State, or local);

___ Foreign government;

___ International organization per 26 CFR 1.6049-4;

___ Other----------

(5) Common parent.

___ Offeror is not owned or controlled by a common parent;

___ Name and TIN of common parent:

Name----------

TIN----------

(c) Offerors must complete the following representations when the resulting contract will be performed in the United States or its outlying areas. Check all that apply.

(1) Small business concern. The offeror represents as part of its offer that it ( ) is, ( ) is not a small business concern.

(2) Veteran-owned small business concern. (Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a veteran-owned small business concern.

(3) Service-disabled veteran-owned small business concern. (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (c)(2) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a service-disabled veteran-owned small business concern.

(4) Small disadvantaged business concern. (Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.) The offeror represents, for general statistical purposes, that it ( ) is, ( ) is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(5) Women-owned small business concern. (Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.) The offeror represents that it ( ) is, ( ) is not a women-owned small business concern.

Note: Complete paragraphs (c)(6) and (c)(7) only if this solicitation is expected to exceed the simplified acquisition threshold.

(6) Women-owned business concern (other than small business concern). (Complete only if the offeror is a women-owned business concern and did not represent itself as a small business concern in paragraph (c)(1) of this provision.) The offeror represents that it ( ) is, a women-owned business concern.

(7) Tie bid priority for labor surplus area concerns. If this is an invitation for bid, small business offerors may identify the labor surplus areas in which costs to be incurred on account of manufacturing or production (by offeror or first-tier subcontractors) amount to more than 50 percent of the contract price:

_____

(8) Small Business Size for the Small Business Competitiveness Demonstration Program and for the Targeted Industry Categories under the Small Business Competitiveness Demonstration Program. (Complete only if the offeror has represented itself to be a small business concern under the size standards for this solicitation.)

(i) (Complete only for solicitations indicated in an addendum as being set-aside for emerging small businesses in one of the four designated industry groups (DIGs).) The offeror represents as part of its offer that it ( ) is, ( ) is not an emerging small business.

(ii) (Complete only for solicitations indicated in an addendum as being for one of the targeted industry categories (TICs) or four designated industry groups (DIGs).) Offeror represents as follows:

(A) Offeror's number of employees for the past 12 months (check the Employees column if size standard stated in the solicitation is expressed in terms of number of employees); or

(B) Offeror's average annual gross revenue for the last 3 fiscal years (check the Average Annual Gross Number of Revenues column if size standard stated in the solicitation is expressed in terms of annual receipts).

(Check one of the following):

Average Annual

Number of Employees Gross Revenues

___ 50 or fewer ___ $1 million or less

___ 51 - 100 ___ $1,000,001 - $2 million

___ 101 - 250 ___ $2,000,001 - $3.5 million

___ 251 - 500 ___ $3,500,001 - $5 million

___ 501 - 750 ___ $5,000,001 - $10 million

___ 751 - 1,000 ___ $10,000,001 - $17 million

___ Over 1,000 ___ Over $17 million

(9) (Complete only if the solicitation contains the clause at FAR 52.219-23, Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns or FAR 52.219-25, Small Disadvantaged Business Participation Program-Disadvantaged Status and Reporting, and the offeror desires a benefit based on its disadvantaged status.)

(i) General. The offeror represents that either--

(A) It ( ) is, ( ) is not certified by the Small Business Administration as a small disadvantaged business concern and identified, on the date of this representation, as a certified small disadvantaged business concern in the database maintained by the Small Business Administration (PRO-Net), and that no material change in disadvantaged ownership and control has occurred since its certification, and, where the concern is owned by one or more individuals claiming disadvantaged status, the net worth of each individual upon whom the certification is based does not exceed $750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); or

(B) It ( ) has, ( )(has not submitted a completed application to the Small Business Administration or a Private Certifier to be certified as a small disadvantaged business concern in accordance with 13 CFR 124, Subpart B, and a decision on that application is pending, and that no material change in disadvantaged ownership and control has occurred since its application was submitted.

(ii) Joint Ventures under the Price Evaluation Adjustment for Small Disadvantaged Business Concerns. The offeror represents, as part of its offer, that it is a joint venture that complies with the requirements in 13 CFR 124.1002(f) and that the representation in paragraph (c)(9)(i) of this provision is accurate for the small disadvantaged business concern that is participating in the joint venture. (The offeror shall enter the name of the small disadvantaged business concern that is participating in the joint venture: _____.)

(10) HUBZone small business concern. [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents, as part of its offer, that--

(i) It ( ) is, ( ) is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It ( ) is, ( ) is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (c)(10)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture:_____.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(11) (Complete if the offeror has represented itself as disadvantaged in paragraph (c)(4) or (c)(9) of this provision.) (The offeror shall check the category in which its ownership falls):

____Black American.

____Hispanic American.

____Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

____Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

____Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

____Individual/concern, other than one of the preceding.

(d) Certifications and representations required to implement provisions of Executive Order 11246--

(1) Previous Contracts and Compliance. The offeror represents that--

(i) It ( ) has, ( ) has not, participated in a previous contract or subcontract subject either to the Equal Opportunity clause of this solicitation, the and

(ii) It ( ) has, ( ) has not, filed all required compliance reports.

(2) Affirmative Action Compliance. The offeror represents that--

(i) It ( ) has developed and has on file, ( ) has not developed and does not have on file, at each establishment, affirmative action programs required by rules and regulations of the Secretary of Labor (41 CFR Subparts 60-1 and 60-2), or

(ii) It ( ) has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(e) Certification Regarding Payments to Influence Federal Transactions (31 U.S.C. 1352). (Applies only if the contract is expected to exceed $100,000.) By submission of its offer, the offeror certifies to the best of its knowledge and belief that no Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress on his or her behalf in connection with the award of any resultant contract.

(f) Buy American Act--Balance of Payments Program Certificate. (Applies only if the clause at Federal Acquisition Regulation (FAR) 52.225-1, Buy American Act--Balance of Payments Program--Supplies, is included in this solicitation.)

(1) The offeror certifies that each end product, except those listed in paragraph (f)(2) of this provision, is a domestic end product and that the offeror has considered components of unknown origin to have been mined, produced, or manufactured outside the United States. The offeror shall list as foreign end products those end products manufactured in the United States that do not qualify as domestic end products. The terms ``component,'' ``domestic end product,'' ``end product,'' ``foreign end product,'' and ``United States'' are defined in the clause of this solicitation entitled ``Buy American Act--Supplies.''

(2) Foreign End Products:

Line Item No.:----------
Country of Origin:----------

(List as necessary)

(3) The Government will evaluate offers in accordance with the policies and procedures of FAR Part 25.

(g)(1) Buy American Act--Free Trade Agreements--Israeli Trade Act--Balance of Payments Program Certificate. (Applies only if the clause at FAR 52.225-3, Buy American Act--Free Trade Agreements--Israeli Trade Act, is included in this solicitation.)

(i) The offeror certifies that each end product, except those listed in paragraph (g)(1)(ii) or (g)(1)(iii) of this provision, is a domestic end product as defined in the clause of this solicitation entitled ``Buy American Act--Free Trade Agreements--Israeli Trade Act'' and that the offeror has considered components of unknown origin to have been mined, produced, or manufactured outside the United States.

(ii) The offeror certifies that the following supplies are FTA country end products or Israeli end products as defined in the clause of this solicitation entitled ``Buy American Act--Free Trade Agreements--Israeli Trade Act'':

FTA Country or Israeli End Products

Line Item No.:----------
Country of Origin:----------

(List as necessary)

(iii) The offeror shall list those supplies that are foreign end products (other than those listed in paragraph (g)(1)(ii) of this provision) as defined in the clause of this solicitation entitled ``Buy American Act--Free Trade Agreements--Israeli Trade Act.'' The offeror shall list as other foreign end products those end products manufactured in the United States that do not qualify as domestic end products.

Other Foreign End Products

Line Item No.:----------
Country of Origin:----------

(List as necessary)

(iv) The Government will evaluate offers in accordance with the policies and procedures of FAR Part 25.

(2) Buy American Act--Free Trade Agreements--Israeli Trade Act Certificate, Alternate I (JAn 2004). If Alternate I to the clause at FAR 52.225-3 is included in this solicitation, substitute the following paragraph (g)(1)(ii) for paragraph (g)(1)(ii) of the basic provision:

(g)(1)(ii) The offeror certifies that the following supplies are Canadian end products as defined in the clause of this solicitation entitled “Buy American Act--Free Trade Agreements--Israeli Trade Act”:

Canadian End Products:

Line Item No.

(List as necessary)

(3) Buy American Act-- Free Trade Agreements--Israeli Trade Act Certificate, Alternate II (Jan 2004). If Alternate II to the clause at FAR 52.225-3 is included in this solicitation, substitute the following paragraph (g)(1)(ii) for paragraph (g)(1)(ii) of the basic provision:

(g)(1)(i) The offeror certifies that each end product, except those listed in paragraph (g)(1)(ii) or (g)(1)(iii) of this provision, is a domestic end product and that the offeror has considered components of unknown origin to have been mined, produced, or manufactured outside the United States. The terms ``component,'' ``domestic end product,'' ``end product,'' ``foreign end product,'' and ``United States'' are defined in the clause of this solicitation entitled ``Buy American Act--Free Trade Agreements--Israeli Trade Act.''

(g)(1)(ii) The offeror certifies that the following supplies are Canadian end products or Israeli end products as defined in the clause of this solicitation entitled “Buy American Act--Free Trade Agreements--Israeli Trade Act”:

Canadian or Israeli End Products:

Line Item No.

Country of Origin

(List as necessary)

(4) Trade Agreements Certificate. (Applies only if the clause at FAR 52.225-5, Trade Agreements, is included in this solicitation.)

(i) The offeror certifies that each end product, except those listed in paragraph (g)(4)(ii) of this provision, is a U.S.-made, designated country, Caribbean Basin country, or FTA country end product, as defined in the clause of this solicitation entitled ``Trade Agreements.''

(ii) The offeror shall list as other end products those end products that are not U.S.-made, designated country, Caribbean Basin country, or FTA country end products.

Other End Products

Line Item No.:----------
Country of Origin:----------

(List as necessary)

(iii) The Government will evaluate offers in accordance with the policies and procedures of FAR Part 25. For line items subject to the Trade Agreements Act, the Government will evaluate offers of U.S.-made, designated country, Caribbean Basin country, or FTA country end products without regard to the restrictions of the Buy American Act. The Government will consider for award only offers of U.S.-made, designated country, Caribbean Basin country, or FTA country end products unless the Contracting Officer determines that there are no offers for such products or that the offers for such products are insufficient to fulfill the requirements of the solicitation.

(h) Certification Regarding Debarment, Suspension or Ineligibility for Award (Executive Order 12549). (Applies only if the contract value is expected to exceed the simplified acquisition threshold.) The offeror certifies, to the best of its knowledge and belief, that the offeror and/or any of its principals--

(1) ( ) Are, ( ) are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency; and

(2) ( ) Have, ( ) have not, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: Commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a Federal, state or local government contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or Commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(3) ( ) Are, ( ) are not presently indicted for, or otherwise criminally or civilly charged by a Government entity with, commission of any of these offenses.

(i) Certification Regarding Knowledge of Child Labor for Listed End Products (Executive Order 13126). [The Contracting Officer must list in paragraph (i)(1) any end products being acquired under this solicitation that are included in the List of Products Requiring Contractor Certification as to Forced or Indentured Child Labor, unless excluded at 22.1503(b).]

(1) Listed end products.

Listed End Product

Listed Countries of Origin

---

(2) Certification. (If the Contracting Officer has identified end products and countries of origin in paragraph (i)(1) of this provision, then the offeror must certify to either (i)(2)(i) or (i)(2)(ii) by checking the appropriate block.)

( ) (i) The offeror will not supply any end product listed in paragraph (i)(1) of this provision that was mined, produced, or manufactured in the corresponding country as listed for that product.

( ) (ii) The offeror may supply an end product listed in paragraph (i)(1) of this provision that was mined, produced, or manufactured in the corresponding country as listed for that product. The offeror certifies that it has made a good faith effort to determine whether forced or indentured child labor was used to mine, produce, or manufacture any such end product furnished under this contract. On the basis of those efforts, the offeror certifies that it is not aware of any such use of child labor.

(End of provision)

52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (MAY 2004)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 23531.

(2) The small business size standard is 500.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it ( ) is, ( ) is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it ( ) is, ( ) is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a women-owned small business concern.

(4) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a veteran-owned small business concern.

(5) (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a service-disabled veteran-owned small business concern.

(6) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, as part of its offer, that--

(i) It ( ) is, ( ) is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It ( ) is, ( ) is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture:_____.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(c) Definitions. As used in this provision--

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a service-disabled veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern," means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern," means a small business concern --

(1) That is at least 51 percent owned by one or more women; in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)

252.212-7000 OFFEROR REPRESENTATIONS AND CERTIFICATIONS- COMMERCIAL ITEMS. (NOV 1995)

(a) Definitions.

As used in this clause-

(1) Foreign person means any person other than a United States person as defined in Section 16(2) of the Export Administration Act of 1979 (50 U.S.C. App. Sec. 2415).

(2) United States person is defined in Section 16(2) of the Export Administration Act of 1979 and means any United States resident or national (other than an individual resident outside the United States and employed by other than a

United States person), any domestic concern (including any permanent domestic establishment of any foreign concern), and any foreign subsidiary or affiliate (including any permanent foreign establishment) of any domestic concern which is controlled in fact by such domestic concern, as determined under regulations of the President.

(b) Certification.

By submitting this offer, the Offeror, if a foreign person, company or entity, certifies that it -

(1) Does not comply with the Secondary Arab Boycott of Israel; and

(2) Is not taking or knowingly agreeing to take any action, with respect to the Secondary Boycott of Israel by Arab countries, which 50 U.S.C. App. Sec. 2407(a) prohibits a United States person from taking.

(c) Representation of Extent of Transportation by Sea. (This representation does not apply to solicitations for the direct purchase of ocean transportation services).

(1) The Offeror shall indicate by checking the appropriate blank in paragraph (c)(2) of this provision whether transportation of supplies by sea is anticipated under the resultant contract. The term "supplies" is defined in the Transportation of Supplies by Sea clause of this solicitation.

(2) Representation.

The Offeror represents that it-

___Does anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

___Does not anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

(3) Any contract resulting from this solicitation will include the Transportation of Supplies by Sea Clause. If the Offeror represents that it will not use ocean transportation, the resulting contract will also include the Defense Federal Acquisition Regulation Supplement clause at 252.247-7024, Notification of Transportation of Supplies by Sea.

(End of clause)

252.247-7022 REPRESENTATION OF EXTENT OF TRANSPORTATION BY SEA (AUG 1992)

(a) The Offeror shall indicate by checking the appropriate blank in paragraph (b) of this provision whether transportation of supplies by sea is anticipated under the resultant contract. The term supplies is defined in the Transportation of Supplies by Sea clause of this solicitation.

(b) Representation. The Offeror represents that it:

____ (1) Does anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

____ (2) Does not anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

(c) Any contract resulting from this solicitation will include the Transportation of Supplies by Sea clause. If the Offeror represents that it will not use ocean transportation, the resulting contract will also include the Defense FAR

Supplement clause at 252.247-7024, Notification of Transportation of Supplies by Sea.

(End of provision)

Section L - Instructions, Conditions and Notices to Bidders

CLAUSES INCORPORATED BY REFERENCE

52.203-11	Certification And Disclosure Regarding Payments To Influence Certain Federal Transactions	APR 1991
52.204-6	Data Universal Numbering System (DUNS) Number	OCT 2003
52.212-1	Instructions to Offerors--Commercial Items	JAN 2004
52.212-4	Contract Terms and Conditions--Commercial Items	OCT 2003
52.215-1	Instructions to Offerors--Competitive Acquisition	JAN 2004
52.215-5	Facsimile Proposals	OCT 1997
52.232-38	Submission of Electronic Funds Transfer Information with Offer	MAY 1999

CLAUSES INCORPORATED BY FULL TEXT

52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a fixed-price contract resulting from this solicitation.

(End of clause)

52.233-2 SERVICE OF PROTEST (AUG 1996)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from :

U.S. Army Corps of Engineers, Nashville District
ATTN: CELRN-CT, Contracting Officer, Supply & Services Team
PO Box 1070
Nashville, TN 37202-1070

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(End of provision)

52.236-27 SITE VISIT (CONSTRUCTION) (FEB 1995)

(a) The clauses at 52.236-2, Differing Site Conditions, and 52.236-3, Site Investigations and Conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.

(b) A formal site visit is scheduled for Thursday, 1 July 2004 at 10:00 AM, at the lock facility located 3490 TVA Road, Jasper,TN (Southeast of exit 158, I-24). Coordination for the site visit should be arranged by contacting:
Name: Charlie Ho

Address: CELRN-OP-L-N, Nashville District Headquarters, 110 9th Ave South, Nashville,TN
Telephone: 615-736-7822

(End of provision)

EVALUATION FACTORS

SECTION M

EVALUATION FACTORS FOR AWARD

M.1. PRICE BASIS. Prices must be firm. Bids will not be considered which provide for a subsequent increase in prices. A price must be shown for each and every item in Section B, SUPPLIES OR SERVICES AND PRICES/COSTS.

M.2. DISCOUNTS FOR PROMPT PAYMENT. (MAY 1997) FAR SUPPLEMENT 52.232-8. Discounts for prompt payment will not be considered in the evaluation of offers. However, any offered discount will form a part of the award, and will be taken if payment is made within the discount period indicated in the offer by the offeror. As an alternative to offering a prompt payment discount in conjunction with the offer, offerors awarded contracts may include prompt payment discounts on individual invoices.

M.3. AWARD.

M.3.1 General. Notwithstanding any other provisions of these specifications concerning the method of award, award will be made as a whole to the offeror submitting the proposals, which, in the opinion of the Contracting Officer, will be in the best interest of the Government. The Government may make an award without discussion or further negotiation to the offeror whose proposals are most advantageous to the Government.

M.3.2 Procedures. For this solicitation, the Government's use of Two-Phase Design-Build Selection Procedures will be followed. Proposals will be evaluated in phase-one to determine which offerors will submit proposals for phase-two. A maximum of three (3) offerors will be selected to submit phase-two proposals. One contract will be awarded using competitive negotiation. Requirements for both phase-one and phase-two submittals are stated in section M.5, Evaluation Criteria.

M.3.3 Price. Price is not expected to be the controlling factor in the selection of a Contractor for this solicitation. However, as the evaluated merits of competing technical and management proposals becomes more equal, total price and other price factors could become more important in the selection. Total price and other price factors could become the deciding factor for selection, depending upon whether the most acceptable technical proposal was determined to be worth the cost differential, if any. Cost or price related factors are required for phase-two proposals only, and or not permitted in phase-one.

M.4. PREPARATION OF PROPOSALS.

M.4.1 All proposals shall be submitted in the format noted below and three separate parts as follows:
PART I – Technical Proposal

PART II – Management Proposal

PART III – Price Proposal (required for phase-two proposals only)

M.4.2 All pages containing text shall be consecutively numbered double-spaced typewritten on 8-1/2 X 11-inch paper with adequate margins of at least one inch. Proposals shall not be permanently bound in order to facilitate incorporation of the proposals into the final contract document.

M.4.3 It is the offeror's responsibility to ensure the completeness of each proposal. The evaluation panel for the Government may evaluate solely on the information provided in the proposals and will not assume that an offeror possesses any capability unless specified in the proposals.

M.4.4 Six copies of each proposal shall be submitted.

M.5. EVALUATION CRITERIA.

M.5.1 Phase One Proposal.

As per Section C, Specifications, and as set forth in the contract solicitation. The proposal shall clearly and without confusion demonstrate a thorough understanding of the specifications, operational requirements, and integrates all components, equipment, networks, systems, sub-systems, hardware, and software, and associated cabling into a unified, compatible, completely operational and fully integrated system.

Phase-one proposals will be evaluated in accordance with the following two factors, which are listed in descending order of importance.

M.5.1.1 Part I – Technical Proposal.

Technical criterion is the most important factor for evaluation. Specifically, rating will be in the following two sub factor categories and each sub factor is listed in descending order of importance:

(1) Technical Approach. The offeror shall (a) provide a single line schematic/block diagram(s) of the proposed PC-based Lock Control System and Operator Interface Network, and (b) furnish manufacturer's brochures, bulletins, catalog cuts, and descriptive technical data for essential proposed equipment and materials. As a minimum, furnish catalog cuts for the PC-based Lock Control System and Operator Interface Network major components, variable frequency drive(s), fiber optic network cable, I/O network configuration, field bus equipment, and software packages. These submissions shall clearly demonstrate the technical approach the offeror is proposing and should be supplemented by written narrative stating why the approach is best for the required application.

(2) Technical Qualifications. The offeror shall provide written documentation ensuring technical competence, construction and shop fabrication experience, and specialized experience as related to PC-based monitoring and control equipment; Operator Interface equipment; variable frequency drive equipment; fiber optics; I/O field bus networks; and associated equipment programming. Documentation shall be in the form, but not limited to, a complete listing of qualified, technical points-of-contact (POC). Documentation shall include POC's hours/days of availability for this contract, number of years of similar experience, classification (engineer/discipline, engineer associate, programmer, systems integrator, etc.), qualifications, and whether an employee of the offeror, sub-contractor, or manufacturer.

M.5.1.2 Part II – Management Proposal.

Management criterion is the second most important factor for evaluation. Specifically, rating will be in the following sub factor category:

Contractor Related Experience: The offeror shall demonstrate experience in similar type work. An evaluation will be made of the offeror's experience and his capability to perform in similar type work, i.e., design of PC-based control systems; preparation of design and installation documents; software and hardware programming; on-site start-up services and support; and on-line trouble-shooting and maintenance assistance.

Proposals shall include a listing of similar projects, including clients' names and telephone numbers. Include description, size, and scope of projects, and dates of performance. Indicate whether personnel that performed these prior projects will be committed to this project. The offeror shall provide written documentation listing contracts, within the past three (3) years, that utilized the proposed systems equipment, i.e., PC-based controls, hardware and software; operator interface equipment, hardware and software; variable frequency drives; I/O field bus networks; and fiber optic networks. Documentation shall

state their company's involvement, i.e., designer, systems integrator, fabricator, start-up services, training services, etc., with the contract; date of contract award; name of company and point(s)-of-contact (POC), including POC's address and telephone number(s); and type of contract for which equipment was utilized, i.e., automotive, paper mill, processing, utilities, etc. The Government reserves the right to make contact with any and all companies listed. Other information relative to the experience factor is invited.

M.5.2 Phase Two Proposal.

As per Section C, Specifications, and as set forth in the contract solicitation. The proposal shall clearly and without confusion demonstrate a thorough understanding of the specifications, operational requirements, and integrates all components, equipment, networks, systems, sub-systems, hardware, and software, and associated cabling into a unified, compatible, completely operational and fully integrated system.

Phase-two proposals will be evaluated in accordance with the following three factors, which are listed in descending order of importance.

M.5.2.1 Part I – Technical Proposal.

Technical criterion is the most important factor for evaluation. Specifically, rating will be in the following two sub factor categories and each sub factor is listed in descending order of importance.

(1) Design Concepts. The offeror shall provide design concepts and technical solutions, which define the technical approach required to furnish a complete rehabilitation of the existing lock control system. The concepts and technical solutions shall be presented, as a minimum, with the following drawings: (a) a single line schematic/block diagram(s) of the proposed PC-based Lock Control System, (b) Operator Interface schematic, including preliminary layout of all bench boards/cabinets, (c) preliminary layout of miter gates, culvert valves, and tow haulage unit controllers, (d) I/O network configuration, (e) examples of operator control screens, (f) proposed hard-wired safety system configuration, and (g) proposed water level system configuration and equipment.

(2) System Equipment. The offeror shall provide a complete detailed description of all proposed systems equipment and materials as required by these specifications and as proposed in the above Design Concepts. The systems equipment and materials detailed descriptions shall include, but not be limited to, the manufacturer's descriptive and technical literature, performance charts and curves, catalog cuts, and the offeror's supplemental written documentation. Literature shall clearly exhibit the compatibility, reliability, functionality, interoperability, and expandability of all proposed systems equipment and materials. The offeror shall identify technical assumptions and anticipated problem areas, and provide recommended solutions. The offeror shall provide for all proposed equipment and materials the number of years it has been in manufacture, whether it requires special manufacturing or is commercial off-the-shelf furnished, and estimated number of weeks for delivery of each, once Government approval for shipping has been granted.

M.5.2.2 Part II – Management Proposal.

Management criterion is the second most important factor for evaluation. Specifically, rating will be in the following three sub factor categories and each sub factor is listed in descending order of importance:

(1) Management Approach: The offeror shall provide a proposed computerized schedule (Bar, Gantt, or Pert-type) with supporting narrative text and logic flow diagrams for accomplishment of all

required contract requirements. The schedule shall show a step-by-step task description of the on-site start-up process, estimated time required for each task and cumulative totals, and all equipment (to be furnished by offeror) required to perform these tasks. The total schedule shall include, but not be limited to, the following services: (a) engineering and design, (b) procurement, (c) shop assembly/fabrication, (d) on-site installation, startup, and commissioning, (e) training, and (f) as-built drawings. On-site start-up services shall include, but not be limited to, all programming (hardware and software), calibration, and troubleshooting requirements. All on-site start-up tasks shall be coordinated with and have Government approval before commencing and adhere to the safety requirements of U. S. Army Corps of Engineers Manual, EM-385-1-1, revised 3 September 1996, subject SAFETY AND HEALTH REQUIREMENTS MANUAL; the provisions of the Occupational Safety and Health Act (OSHA); and the National Fire Protection Association (NFPA 70-2002, National Electrical Code).

(2) Key Personnel: The offeror shall identify principal program personnel with their areas of responsibility and relationship with management structure that will be dedicated to this contract. List of personnel shall include classification (owners, managers, procurement personnel, engineers, engineering associates (techs), programmers, systems integrators, vice-president in-charge-of-sales, etc.), number of personnel, qualifications, and whether an employee of the offeror, sub-contractor, or manufacturer.

(3) Training Services: The offeror shall provide written documentation ensuring training services for, but not limited to, the PC-Based Lock Control Network system equipment; Operator Interface Network system equipment; Miter Gates, Culvert Valves, and Tow Haulage Unit Equipment; Peripheral Lock equipment; Hard-Wired Safety System equipment; and Miter Gate Drive System equipment. Documentation shall be in the form, but not limited to, a proposed training agenda showing specific topics and estimated times. Include all equipment, manuals, and other teaching aides (to be furnished by offeror) required to perform necessary on-site training. List of personnel shall include classification (engineer/discipline, engineer associate, programmer, systems integrator, etc.) number of personnel, qualifications, and whether an employee of the offeror, sub-contractor, or manufacturer.

M.5.2.3 Part III – Price Proposal.

The price proposal will be reviewed for completeness and compatibility with the technical and management proposals. Even though the total contract price will be evaluated, the primary emphasis will not be placed only on the lowest bid, except as previously mentioned. The price to be evaluated will be the total of the offeror's Total Basic Proposal. Price will not be scored.

M.6 EVALUATION PROCESS.

M.6.1 Award will be made to the responsive and responsible offeror, whose proposals conforms to the solicitation and is within a Technical/Price competitive range as determined by the Contracting Officer or Representative(s) and has been evaluated as most advantageous to the Government.

M.6.2 It is contemplated that discussions will be conducted with all offerors determined to be in a competitive range. However, the Government may award a contract based on initial offers received, without discussions of such offers. Accordingly, each initial offer shall be submitted on the most favorable terms, which the offeror can submit to the Government.

M.6.3 The right is reserved to accept other than the lowest cost offer and to reject any or all offers.

M.6.4 A survey team may verify any information provided in the proposals to better evaluate the offeror's ability to perform.

M.6.5 Selection of a Contractor will be made by an integrated assessment of the proposals submitted. The integrated assessment will involve a determination by the Government of the overall merit of each Offeror's proposals, recognizing that the subjective judgment on the part of the Government evaluators is implicit in the entire process. An award will be made to the offeror whom the Government determines can accomplish the necessary

work to satisfy the objectives and requirements set forth in the contract specifications in a manner most advantageous to the Government.

M.7 NEGOTIATED PROCUREMENTS. In negotiated procurements, “bid” and “bidder” shall be construed to mean “offer/proposal” and “offeror”.

END OF SECTION